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SPECIAL ADDRESS

TUBERCULOSIS AND NATIONAL WELFARE.[1]

By the Right Hon. HERBERT H. ASQUITH,

M.P.,

Prime Minister and First Lord of the Treasury.

I have not come here for the purpose of delivering an address, but simply to express in a very few words the good wishes of all who are interested in the welfare of the community with the practical success of the deliberations upon which you are entering to-day. This Association was formed some fifteen years ago under the auspices of King Edward VII., with an object which I believe to be of the utmost importance—namely, the education and spread of sound knowledge among the world at large on the subject of tuberculosis. Never was that object of greater importance than it is at the present moment, and it must be a satisfaction to those who are interested in the cause to know that at this Conference, although it is a national society, you can count upon the presence of a number of eminent scientific authorities from all the countries of Europe.

[1] An address delivered on Monday, August 4, 1913, at the Central Hall, Westminster, on the occasion of the opening of the Fifth Annual Tuberculosis Conference organized by the National Association for the Prevention of Consumption, Lord Balfour of Burleigh, Chairman of the Association, presiding. The proof of this report of the Prime Minister's Address has been submitted to Mr. Asquith, and has been revised in accordance with his approval. The Address, together with the Transactions of the Conference, will be issued in book form in due course, and may be obtained on application to the Central Offices of the National Association for the Prevention of Consumption, 20, Hanover Square, London, W.

I have said that this is primarily a National Association; and perhaps I cannot more usefully occupy the few moments in which I propose to address you than by stating two or three facts in regard to the existence and extent of this terrible disease, and the steps which have been taken to cope with it in our own country. The loss of life caused by tuberculosis is appalling. I am told by the Local Government Board that out of every ten deaths from all causes one is due to this disease. And the loss is greatest in the working years of life. Between the ages of twenty and forty-five one out of every three deaths from all causes is due to pulmonary tuberculosis. As might be expected, the death-rate is highest in London and in the other large towns. But it is sufficiently serious and sufficiently severe throughout the length and breadth of the country.

Now I am coming to the more hopeful aspect of the case. In the ten years from 1871 to 1880 the average annual deaths in England and Wales from all forms of tuberculosis numbered about 70,000. In 1911, two years ago, they had fallen to 53,000. Allowing for the increase of population, the number of deaths in 1911 would, had the death-rate of 1871 to 1880 been continued, have been about 103,000. Fifty thousand lives were therefore saved in the course of one year. That is very satisfactory and gratifying.

What are the causes of the decline, and how far may we look forward to seeing it progressively increase in the near future? We shall all agree that among them are improved social conditions, particularly housing, improved habits of the population at large as regards cleanliness, and last, but by no means least, the greatly increased use of institutions for the treatment of the sick. It is significant that in 1911, in London over half the total male deaths, and in England and Wales over one-third of the total male deaths, from tuberculosis occurred in institutions for the sick. Something, therefore, and something considerable, has been done to check the ravages of this terrible scourge.

But I am glad to be able to add that we have reasons for expecting even greater progress in the near future. First and foremost, we can count upon the steady and continuous improvement in sanitation, and in the provision of decent and habitable dwellings. Next, you should not lose sight of the powerful aid to direct action by sanitary authorities which has been rendered possible by the compulsory notification of cases of tuberculosis. The Local Government Board in that matter has pursued a policy of what some people may think slow, but of steady, advance, with the result that since February this year the notification of all cases of every form of tuberculosis has become compulsory. Further, we must recognize, and recognize gratefully, the action of a considerable number of the more enlightened among our sanitary authorities in the campaign against tuberculosis, both in regard to

prevention and to treatment. Lastly, there is the sanatorium benefit under the National Insurance Act, and the provision of a capital sum of £1,500,000 for the erection of sanatoria for the entire community.

These are very hopeful features. The truth is—and I believe that is one of the most important things you should bear in view in your deliberations—that if a really successful campaign is to be waged against this, perhaps the most formidable physical enemy with which our race in the Western world has to contend, it must be due to the co-operation and co-ordination of science, of philanthropy, and of Government. And one of the main topics which you propose to discuss here this week is how far that co-ordination between the different forces which are arrayed upon the same side, and which often waste some of their energy in unnecessary duplication and friction, may be improved and perfected so that the common object may be more readily and more efficiently attained.

I wish you, not only on behalf of the Government, but on behalf of the whole community, an enlightened and a free discussion of the great topics which you are met to consider, with the confident hope that the result of your deliberations will be to strike another and perhaps more effective blow than has ever yet been dealt at this great enemy of our race. I have very great pleasure in welcoming you here to London, and declaring your proceedings open.

ORIGINAL ARTICLES.

TUBERCULOSIS AND THE GENERAL HOSPITAL.[1]

By Sir THOMAS OLIVER,
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The discovery of the tubercle bacillus by Koch gave not only a fresh impetus to the study of pulmonary and other forms of tuberculosis, but it raised hopes that the malady would be brought within the spheres of prevention and cure. Since tuberculosis is of all maladies the one disease which claims the greatest number of victims—50,000 annually in this country, or one-ninth of the total death-rate—the problem of tuberculosis remains for medical men one of the most fascinating of our time. In the wards of our general hospitals there are almost always cases of tuberculosis. With increasing knowledge of the disease and of its infectious nature, we naturally ask whether it is desirable that such a disease should be treated in general hospitals. It seems something of a contradiction that, while hygienists are teaching the necessity of segregating open tuberculous patients in their homes or of removing them to sanatoria, hospital physicians should be treating them in their wards. The experience of the Brompton Hospital is quoted to show that, given good conditions and plenty of ventilation, the infectiousness of tubercle is slight. Medical practitioners also tell us that only in a few instances, considering the opportunities for infection, is the disease directly conveyed from a sick husband to a healthy wife, and *vice versa*. Opposed to these opinions, however, there are instances on record of nearly whole families having been wiped out by the introduction into the home of an infected member. The case quoted by Dr. H. G. Sutherland[2] of the serious consequences which followed the introduction of illness by a sick daughter into the home of a crofter at Tarbert, Morar, cannot be ignored. The father, who was a ghillie, had lived in the same house for twenty-one years. His wife was healthy, and was the mother of seven sons and five daughters, their ages ranging

[1] An address given at the British Hospitals Association, Oxford Conference, 1913.

[2] See "Control and Eradication of Tuberculosis," by Many Authors, p. 12. Edinburgh: Wm. Green and Sons. 1912.

from twenty-one to two years. In April, 1906, the eldest girl, aged twenty-one, who had been in service, came home suffering from a suppurating finger. Shortly afterwards symptoms of pulmonary tuberculosis showed themselves, and she succumbed to tuberculous meningitis on May 26. Six months afterwards a sister, aged fourteen, developed phthisis, and died in the following January. During her illness the father developed cough, and the mother suffered from pain in the abdomen and left ankle. Two daughters, aged twenty and ten, became ill, and the infant, aged two, became anæmic and rapidly emaciated. The mother was subsequently found to be suffering from tuberculous disease of the ankle, and the two girls and the baby from pulmonary phthisis. The baby died in January, having been ill three months. The father gradually got worse, and ultimately succumbed to phthisis. In March one of the boys, aged sixteen, was found to be suffering from pulmonary tuberculosis. This case puts beyond all doubt not only the infectiousness, but the virulence which tubercle may occasionally assume. And yet, notwithstanding such cases, the infectiousness of tuberculosis is on the whole of a comparatively mild nature. Circumstances are, however, now and again in operation whereby the virulence of the tubercle bacillus becomes increased. We have at least two factors to deal with—an organism whose virulence can vary, and also individuals whose resistance to the micro-organism may be increased or diminished in accordance with the influence of heredity, immunity acquired by harbouring the bacillus in small numbers; and also the opposite—viz., an increased susceptibility to the disease or anaphylaxia.

It is a question as to how far infection has played any notable part in spreading the disease in the wards of a large hospital. That flies are carriers of the disease, and therefore objectionable intermediaries, is now beyond all dispute. Last year I carried out with Dr. Slade, bacteriologist to the Royal Victoria Infirmary, Newcastle-on-Tyne, a series of experiments to test the infectivity of the expired air and of the sputum of phthisical patients. I got three patients to speak and read aloud for ten minutes, and cough into specially prepared agar-glycerine films, from which cultures were made, and emulsions injected into the body of guinea-pigs. In one case, where the patient, a pronounced tuberculous subject, had coughed into the film thirty-seven times, an emulsion injected into guinea-pigs did not give rise to tuberculosis, nor did it do so in the case of another guinea-pig; but in a third case the emulsion, made from the droplets caught in the film during coughing, was followed by miliary tuberculosis, in which the liver and lungs were implicated. Of equally infective powers did I regard the expectoration of these three patients who coughed on to the prepared films, and yet only from one of them did tuberculosis in animals follow. Still, even

this is too high a percentage of risk to be run in a hospital by bringing susceptible persons within the range of infection from tuberculous patients. In order to test how far the blood of persons suffering from well-marked pulmonary phthisis might contain the tubercle bacillus, Dr. Slade and I carried out several experiments, but in not one did a guinea-pig become tuberculous. I must admit that in all these experiments I expected more serious results to have followed inoculation of animals. With ordinary care, therefore, as regards ventilation, cleanliness, removal and disinfection of the sputum, the risk of infection in the ward of a general hospital is not so great as to cause alarm; but the point rather is this: Is it wise to run any risk at all? What, too, is the best thing for the patient, and what is the best for others? There is also another side to the problem: Can the admission of tuberculous patients into a general hospital be altogether prevented? and, if so, is it desirable, from a teaching point of view, that they should be excluded? On the whole, there is not the least doubt that the best results of the treatment of tuberculous patients are obtained by residence in sanatoria; and yet to sanatoria unqualified praise cannot be given, for results have not always come up to expectation. There is not the least doubt that those who adopt the open-air treatment of tuberculosis are proceeding on the most satisfactory and best hygienic lines. Compared with cattle which are housed during the winter months, and thereby become susceptible to tubercle, the herds which live out of doors all the year round and roam about freely in the open do not suffer. An appeal is made to this fact in favour of the open-air life. But what of wood-pigeons sleeping on the tops of trees, breathing the purest air, and yet dying from tuberculosis? Such a circumstance weakens our belief in the efficacy of pure air. Notwithstanding all this, the crowded ward of a general hospital is not the ideal place for the treatment of tuberculosis. There is not the quantity nor the purity of the air the patient requires.

With this mixed experience before us, we return to the question, Ought tuberculous patients to be admitted into a general hospital? To that I return the answer you cannot readily keep them out. Take, for example, acute miliary tuberculosis attended by high fever, and which is with difficulty differentiated from typhoid fever. Such a case may find its way into the ward of a general hospital, and I must admit that I have never seen any bad effects follow. Wherever housed, the patient is almost sure to succumb to his malady; there is little information, if any, of the disease having spread through the wards of an infirmary. Patients thus affected are not only admitted into the wards, but are treated and die, without in some instances the diagnosis being accurately made until on the post-mortem table. I have never known of a case of acute miliary tuberculosis treated in a general

hospital followed by the development of the disease in other patients in the wards. There are, too, cases of men and women who, when at work or out walking, are suddenly seized with hæmoptysis, so that, should the blood-spitting be rather profuse and the shock great, it would be impossible from a humane point of view to refuse admission to such patients. Or, again, a patient is sent into hospital suffering from pleurisy with effusion. Seeing that such a large percentage of cases of pleurisy are tuberculous at the commencement, or become so afterwards, the admission of such a case into a general hospital cannot be refused. It is almost useless to discuss a problem like this, when post-mortem statistics show that in 70 per cent. or more of the bodies of persons dying in hospital from all causes, including accidents, there are evidences of arrested tuberculosis. Take, again, peritoneal effusions. Who can say in the first instance what is the pathology of such cases? In young persons probably most of the effusions are tuberculous. They not only do well under treatment in hospital wards, but they do not spread the disease to others. Apart from *Bacillus coli*, gonococcal, and streptococcal infections of the urogenital tracts in men and women, is not salpingitis with adherent tubes, also similar focal accumulations of pus in the kidney, frequently of tuberculous origin? When we deal with diseases of the alimentary canal, are we always sure of our diagnosis? Cases of tuberculous ulceration of the intestine and patients with enlarged glands in the abdomen find their way into hospitals, where their malady may be accurately diagnosed or not. There are the two extremes of life at which tuberculosis may occur and the dangers of infection not be recognized: (1) Young children under two years of age with meningitis, and (2) old asthmatic and emphysematous patients over sixty years of age. Children under two years of age who are the subjects of pulmonary disease do not expectorate. Tuberculosis assumes so many forms, and underlies so many anomalous affections not at first believed to be tuberculous, including various types of joint disease primarily regarded as rheumatic, but which later experience has proved to be pulmonary osteoarthropathies. Tuberculosis is too subtle a malady, and its influences and ramifications are too widely spread, to bring it under the unqualified ban of prohibited admission into a general infirmary, as the following illustration will show: A mason's labourer falls from a scaffolding and receives an injury to the wall of his chest. He is admitted into an infirmary suffering from fractured or injured ribs, pleurisy develops, and this is subsequently found to be tuberculous. The pleurisy may or may not have been tuberculous shortly after the injury, but it becomes so. Is such a patient to be refused admission into a general hospital?

It is another thing when we come to discuss the question of open forms of tuberculosis, cases in regard to which there is no difficulty of

diagnosis, such as advanced pulmonary tuberculosis with abundant expectoration, or suppurating glands in the neck. I do not know whether there are instances in the surgical wards of patients with suppurating tuberculous glands having conveyed the disease to others. It is certainly not desirable that patients in advanced or rapidly advancing pulmonary phthisis should be admitted into the wards of a general hospital; but this is as much from the point of view that, for the patient himself, a crowded ward is not the best place for him nor for the other patients, whose night's rest may be disturbed by the frequent coughing of the intruder. The men or women in the ward must not only be protected from the phthisical patient, but the phthisical patient must himself be protected. The possibilities of infection cannot be ignored, for the opportunities are freely given to the inmates of the ward to sit beside and talk to a phthisical patient in the same ward, whose frequent cough and expectoration cannot but be without some risk to men and women whose own health at the time is not good. It may take months for a tuberculous infection to reveal itself, and as we cannot always follow the after-history of the patients who leave hospitals and infirmaries, we cannot be quite sure whether all who may have been placed in the way of infection remain free from the disease. Years ago a larger number of cases of pulmonary phthisis was admitted into general hospitals than is admitted to-day. During my experience of thirty-four years as a hospital physician, I can only recall two cases of possible tuberculous infection of one patient by another. I refer to cases of the disease developing under observation, for tuberculosis has no definite period of incubation like other infectious diseases, hence the difficulty of estimating the actual amount of infection which may have taken place. We come, therefore, to this—that there is a large number of cases of tuberculosis which cannot be kept out of a general hospital owing to imperfect diagnosis. There are also many cases of concealed tuberculosis which are treated therein satisfactorily. But special hospitals, annexes to general hospitals, and sanatoria, are places wherein the best results from treatment are obtained. The exclusion of cases of tuberculous disease from teaching hospitals would mean a serious loss to the education of the medical student. Unless we are prepared to allow all our voluntary hospitals to be taken over by the State, I view with a certain amount of apprehension the desire of local insurance committees to subscribe for, and therefore to have control of, a certain number of beds in a general hospital; for as the needs of the public become greater the demands of the committee will also increase, and thereby alter the character of the institution and the original intentions of those who founded the voluntary hospital. In the hospitals of Paris, which are all State-owned, Professor Landouzy reminds us that two-thirds of the *clientèle* are cases of tuberculosis.

As regards other places for the treatment of the tuberculous, there is not the least doubt that a special dispensary, such as recommended by Sir Robert Philip, is the place where patients should first be sent to, and there undergo a process of sifting. This would save general hospitals being called upon to deal with at least a fairly large percentage of the cases, and would not only lighten the wards, but by the nurses following up the cases to their homes it would enable patients to be dealt with in special hospitals, if such exist, or in sanatoria where these have been provided.

If the prevention of tuberculosis is to be the main thing aimed at, the treatment of affected patients in a general hospital is not the best way to accomplish it. Tuberculosis has become a national problem; it is no longer a question of the individual or of the family. The disease calls for treatment in the mass, and not in detail alone. It means not only medical care of the patient and his family, but consideration of the people as a whole. Special hospitals for the treatment of tuberculosis must therefore be established, provision being made for the hopeless cases as against those likely to benefit by treatment, and these hospitals will have to be maintained by the municipality or by the State. As the years roll on the State is bound to become more and more the guardian of the health of the public. One means by which the State can do good in this direction is by not neglecting infected children, for many cases of tuberculosis in the adult are the result of neglected infection dating back to childhood.

THE TUBERCULOSIS DISPENSARY: ITS FUNCTIONS AND METHODS OF WORK.

By J. KING PATRICK,

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The tuberculosis dispensary as an item in the anti-tuberculosis campaign owes its existence to the far-seeing initiative of Sir Robert W. Philip, who in 1887 inaugurated the Royal Victoria Dispensary in Edinburgh. This has the distinction of being the first tuberculosis dispensary in the world. The tuberculosis dispensary, as suggested by Philip, differs from the out-patient departments which devote themselves to the treatment of consumption in that the efforts to combat the disease are not restricted to the individual patient, but a broad and comprehensive outlook on the problem is aimed at, and through the dispensary it is sought to unify and co-ordinate all the various agencies which play their part in the control and eradication of the disease.

The Functions of the Tuberculosis Dispensary.

The tuberculosis dispensary directs its efforts not merely to the individual patient, but through him to the whole community. This outlook must embrace all the factors which we include in the term "environment." We must consider the patient in relation to his home conditions, and eliminate from these conditions all factors such as want of pure air, lack of cleanliness and overcrowding, which will tend to affect his physical state adversely. It is the function of the dispensary also to consider the social conditions under which the tuberculous poor exist, for in the presence of poverty or temporarily straitened financial circumstances it is obviously impossible for the sufferer or those dependent on him to obtain proper nourishment. We must inquire into his conditions of work, endeavouring, as far as possible, to remove the patient from such conditions as are detrimental, and careful inquiries must be made regarding the health of other inmates of the household, to whom the patient must be regarded as a constant source of danger. In addition, the dispensary must fulfil the functions of an educational centre, to which the patient and those in close relationship with him must look for information as to the cause and nature of the disease, so that they may possess that knowledge in the sure possession of which they may be well equipped for the fight with the unseen but relentless foe. If this conception of a tuberculosis dispensary be kept in view, it is obvious that such an institution will be a very valuable factor in the prevention as well as in the treatment of the disease. Another important function which is discharged by the tuberculosis dispensary is the selection of suitable cases for admission to sanatoria, hospitals for advanced cases, open-air schools, and the like. In the words of Philip it should act as a "clearing-house in respect of all sorts of tuberculous material," and in order that this function may be properly discharged, it should be linked up with all the other items in the scheme, including sanatoria and the rest.

In view of the somewhat complex and manifold activities of the tuberculosis dispensary, I venture to think that it possesses one weakness, and that is its name. The word "dispensary" implies treatment, and unduly accentuates what is really only one of its functions. As indicated elsewhere,[1] I would much prefer the name "institute," which would be more appropriate in view of the somewhat diverse functions which it discharges. The dispensary must only be regarded as an item in the scheme. It must be the central agency from which all the other items in the scheme are controlled and co-ordinated. As an isolated agency it is of very little use, but as the centre of a well-organized and properly co-ordinated scheme it is of the greatest value.

[1] Patrick, J. King: "Some Factors in the Fight with Tuberculosis," *Sanitary Journal*, May, 1913.

There are those who would have us believe that our only hope lies in the sanatorium, others lay particular stress on the necessity for the segregation of advanced cases, and others again tell us that tuberculin alone must be relied on to eradicate tuberculosis. The sanatorium as an isolated means of dealing with tuberculosis in the masses has been tried and found wanting. The field of usefulness of the sanatorium must always be strictly limited, and the enormous expense entailed in achieving results of very questionable value is prohibitive. Even if we could isolate every infective case of pulmonary tuberculosis to-morrow, the tuberculosis problem would still be with us, and tuberculin is certainly not the alpha and omega of the question. Each of these agencies, however, has a very useful function to discharge when linked up together in a co-ordinated scheme which embraces the sanitarian, the clinician, the voluntary worker, the education authority, and the open-air school, and the central and controlling influence of all these agencies must be the tuberculosis dispensary. The enthusiasm of the advocates of tuberculin treatment has led them to introduce dispensaries called "tuberculin" dispensaries, where treatment by tuberculin is relied on to eradicate the disease, to the neglect of other measures. The resulting division of the advocates of dispensaries into two camps is much to be deplored and is quite unnecessary. The weakness of the "Edinburgh" system is that tuberculin is comparatively neglected on the grounds that its claims have not yet been sufficiently established. I am not aware that the claims of any new drug have ever been established by the process of "shelving" it. On the other hand, the weakness of the "tuberculin" dispensary lies in the fact that its exponents rely exclusively on one agent. To my mind the ideal tuberculosis dispensary combines the virtues of both systems, and its promoters should regard the whole question from a broad and comprehensive standpoint, preserving an open mind in all things, including their attitude towards tuberculin treatment. At Portsmouth a municipal dispensary has been in operation for some time, which combines the best features of both systems, yet it is called the "Portsmouth Tuberculin Dispensary." Dr. Mearns Fraser, in a very excellent report recently published,[1] says: "It must not be assumed, however, that the dispensary is simply or solely a place where tuberculin is injected, for such an assumption would be quite erroneous." The average man will be excused if he fails to discover what other assumption is possible. The term "tuberculin" dispensary is quite illogical if it is not "simply or solely a place where tuberculin is injected." Dr. Mearns Fraser enumerates nine municipal measures emanating from the "tuberculin" dispensary. One of these is treatment by tuberculin!

[1] Fraser, A. Mearns: "Report on Sanatoria and Tuberculin Treatment," Portsmouth, 1911.

The Work of a Tuberculosis Dispensary.

The work carried on by a tuberculosis dispensary may be enumerated as follows:

1. *The Examination of Patients referred to it from Various Sources.*—The clientele of a dispensary is made up of patients who come to it from a variety of sources which may be summarized as follows: (*a*) Cases notified to the Medical Officer of Health; (*b*) cases sent by medical practitioners for confirmation of diagnosis or for treatment; (*c*) cases sent by voluntary charitable organizations; (*d*) a certain number of patients come through persons already under treatment.

2. *Treatment of Persons suffering from Tuberculosis.*—Records of these cases are kept and filed, containing full information as to the patient's illness, home conditions, conditions of work, number and names of "contacts," etc.

3. *Visitation of Patients at their Own Homes* for purposes of (*a*) supervision and education, and (*b*) treatment by the medical officer, trained nurses and voluntary workers. The work of treatment will obviously be undertaken by the medical officer only. The efforts of the others will be directed to the removal of all unhygienic influences in the home, and the instruction of the patient and his friends as to the best ways of combating the disease.

4. *The Examination of "Contacts" of the Patient.*—One of the tragic facts about phthisis is that infected persons do not seek medical advice until the disease is well established, and in consequence difficult to cure. By carefully examining all cases who are in close relationship with existing cases of the disease it is often possible to detect early and hitherto unsuspected cases who would not otherwise have sought advice. The importance of this branch of the work of a dispensary is too obvious to require further comment.

5. *Provision of Shelters* for open-air treatment of suitable cases, and supplying sputum bottles, etc.

6. *Bacteriological Examination of Sputum, etc.*

7. *Instruction of Patients and of the Public generally* by means of lectures, literature, and in other ways as to the causes of infection and how to avoid them, the advantages of fresh air, cleanliness, the value of various food-stuffs, etc.

8. *The Selection of Cases for Sanatoria,* hospitals for advanced cases, open-air schools, etc. Every case of tuberculosis in a given district should pass through the portals of the tuberculosis dispensary for that district, irrespective of what their ultimate destination may be. In this way the "clearing house" ideal of the tuberculosis dispensary may be attained.

9. *The After-Care of Patients discharged from Sanatoria.*

It will be seen, then, that the part played by the tuberculosis dispen-

sary as the controlling item in the anti-tuberculosis campaign is an all-important one. It must be the connecting link bringing all the other agencies into close relationship with one another. It must be the link which binds the Public Health Department, the Sanatorium, the Hospital for Advanced Cases, the Labour Colony, the School Medical Inspection Department, voluntary agencies, and the general practitioner to one another and correlates the work of each, and its functions must be educative and supervisory as well as curative.

THE TREATMENT OF PHTHISIS BY THE ADMINISTRATION OF INTENSIVE NASCENT IODINE.

By EDWARD G. REEVE,

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The treatment of tuberculous cases with nascent iodine has been carried out along lines suggested by Dr. Curle,[1] excepting for the following variations. I quote from correspondence received from Dr. Curle after he had seen my cases. "Dr. Reeve's results have been much better and more rapid than my own, and improvements on my treatment which I have noted are: *Variation* 1.—He has eliminated the potassium bicarbonate from the morning dose of iodide. This I intend to do in future, as even when this was done he has had only two cases of iodism in sixty-eight patients. My instructions in future will be only to administer 30 grains sodium bicarbonate every two hours when iodism threatens. The power of nascent iodine is, I believe, increased by this omission. *Variation* 2.—Another variation which I have noted is that he gives about half a pint of still, freshly prepared lemonade with each dose of chlorine solution, instead of the small dose of factory-made lemonade. This is more pleasant to the patient, and I believe the acid retards the re-composition of the free iodine into alkaline iodide in the blood, which is the tendency.

Administration of the Iodine.

"It is important that the chlorine water should be carefully prepared. Acid hydrochlorine conc., 2 drachms, is allowed to act on powdered potassium chlorate, 1 drachm, in a dry 24-ounce bottle. Chlorine is at once evolved and, being heavier than air, displaces the air in the

[1] See *Practitioner*, December, 1912.

bottle. When the coloured gas is seen to reach the neck of the bottle, it is tightly corked, and the reaction allowed to continue for fifteen minutes. The cork is then removed, and 6 ounces of water quickly added and the bottle well shaken. This is repeated until all the water has been added. In preparing large quantities for institution work, I have found it better to introduce the water through a funnel and tube, which passes through a stopcock in the cork. Thirty grains of potassium iodide are given in one half-pint of water at breakfast time —*i.e.*, 7 a.m.; four hours later, 1 ounce of chlorine water is given in one half-pint of lemonade. This dose is repeated at two-hourly intervals until sufficient has been given. In starting, 3 ounces of chlorine are administered daily. This produces signs of iodism, which pass off after the first four or five days. There is a feeling of cold in the head and headache. The symptoms appear towards midnight, but the early morning dose of potassium iodide soon relieves them, and after a week or ten days the patient feels no ill-effects from the treatment. Some patients have no symptoms from the beginning. At the end of three weeks the dose is increased to 4 ounces of chlorine water, and later to 5, without further ill-effects. The headache produced during the first few days is often severe. From personal experience one knows there is a feeling of congestion mostly marked in the frontal regions. The chlorine water is unpleasant at first; it produces a burning sensation in the œsophagus, but this passes off after a time.

Results of Treatment.

"I have used this treatment for over one hundred cases, nearly all advanced in tuberculous disease, and of every age; seventy-six of the patients were subjects of pulmonary tuberculosis.[1] In all but three cases the treatment was persevered with, with encouraging results. In all patients where there has been rapid loss of weight this has been checked, and they nearly all gain rapidly, some as much as 20 pounds to 25 pounds in three months. The temperature is at first slightly increased, but this rise, generally most marked about the third day, passes quickly off; the daily remissions gradually become less, and eventually the temperature runs a normal course. The sputum is at first increased, then lessened, and slowly diminishes from, say, 8 ounces in twenty-four hours to 3 drachms in the same time. The sputum becomes bleached, less caseous, and there is more mucus, and it often shows bloodstains. It becomes less tenacious, and is expectorated more easily. The tubercle bacilli show degeneration and become less acid-fast, show 'splitter' forms and slowly decrease in numbers. Thirty-three per cent. of my cases were tubercle free at the end of

[1] A record of a number of cases treated by nascent iodine will be found in the *Practitioner*, September, 1913.

three months' treatment. Many had the organisms of fixed infection present, giving rise to continuous and irritating cough. These gradually cleared up, and the cough became less, and in many cases ceased. The treatment increases vitality; all patients say they feel better and want to get up, and they certainly eat well and sleep better while under the treatment. There is steady improvement in the physical signs. The tuberculous patches appear to dry up, and moist sounds disappear. I have not noticed any decrease in dulness. Many patients have complained of pain in the chest when improvement was most marked; and this, I think, may be due to rapid cicatricial contraction.

"Cases of surgical tuberculosis with sinuses have also been treated in the same way. The discharge at first increases, but later becomes slowly less. No case has healed up at present, though they all steadily put on weight and appear greatly improved. The treatment certainly has powerful penetrating effects, and appears to sterilize the tissues. In some cases where the sputum proved to be tubercle free before treatment, the bacilli were found in great numbers after a few days, probably showing that closed foci had been opened up. The same effect was noticed in a case of old healed abscess of the hip and rib, and in this case abscesses developed at the old sites of the disease. The hip discharged 8 ounces of pus after three days' treatment, and a swelling about the size of an egg appeared over the rib. This case had remained healed for five years. The progress of cases has been checked by the polymorpho-neutrophile count. The importance of this count for diagnostic purposes cannot be over-estimated. In no case examined have I found a normal count when the sputum proved to be T.B.+. In cases where the diagnosis was doubtful, but where there was a marked mixed infection and no tubercle, the count was normal. During treatment there has not been much improvement in the blood picture, though the tendency is for the percentages to move towards the right. In one case, where ordinary symptoms had ceased, treatment was stopped. The count quickly came back to normal. These cases have been in no way selected. Most of them had past histories of alcohol and many of syphilis; some had tertiary ulcers at the same time, and these healed up under treatment, without any form of local treatment. One case of lupus, involving both cheeks and nose, healed in three weeks."

I would strongly advise those who intend to adopt this treatment to make themselves fully acquainted with the theory upon which it is based. Dr. Curle's article already alluded to is clearly written and of great interest.

CRITICAL REVIEW.

THE USE OF THE MEHNARTO SERUM IN TUBERCULOSIS.

By DAVID M. BARCROFT,

M.D.,

Physician to Margaret Street Hospital for the Prevention of Consumption; Clinical Assistant at the Mount Vernon Hospital for Consumption and Diseases of the Chest.

Dr. Mehnarto, of Heidelberg, who has been working for some years on methods of immunity against certain diseases in tropical countries, decided to put his serum to a practical test by coming to London last December. Here he has been able to obtain a large amount of clinical material, and he has chosen tuberculosis, which is one of the most stubborn of infective diseases to treat successfully, as a test of the efficacy of the serum prepared by his special method.

The idea underlying contra-toxin is to use the serum of a warm-blooded animal naturally immune to a certain disease, and to sensitize or correct that serum by the addition of other sera which will prevent the hæmolytic and anaphylactic tendencies of the original serum without impairing its bactericidal qualities.

Dr. Mehnarto claims that he has been successful in the treatment of malaria, trypanosomiasis, and pernicious anæmia, by his serum before undertaking the management of tuberculous cases. The general method employed in this preparation is to use sheep serum as the basis, and this is corrected with minute quantities of the sera of certain cold-blooded animals. Experiments *in vitro* have demonstrated the bactericidal qualities of the serum, and certain animal experiments have indicated its clinical value.

When we come to consider its clinical application, we find that some two hundred patients have been treated for a considerable length of time. Of these about seventy have been treated under the supervision of the writer and his colleagues at Margaret Street Hospital, the Mount Vernon Hospital, and elsewhere. In their selection no case has been rejected where the patient was able to come to hospital as an out-patient, even if the extent of the lesion was considerable and the swing of the temperature wide, or the duration of the disease of long standing. While in this communication it is not proposed to speak of individual cases, still the experience gained demonstrates the almost uniform results that have followed treatment.

With regard to dosage, it may be stated, an initial dose of 5 c.c. is usually given (observation of the patient's temperature for a week previously having been made); this is followed by a dose of 10 c.c. twice a week until the physical condition shows a complete cessation of activity. Immediately following an injection it is unusual to have a definite reaction; if one does happen to develop it is evanescent, and comes on within a few hours after the injection. The injection is generally given deep into the tissues between the shoulders, and may cause some slight local discomfort until the serum is absorbed. Not unfrequently during the first few days or weeks of treatment the disease appears to be more active—that is to say, the temperature swing may be exaggerated and the amount of sputum is often considerably increased. After a longer or shorter time—usually one or two weeks—the amount of sputum diminishes each day, the swing of the temperature contracts, the patient has a feeling of well-being, breathlessness steadily decreases, and ability to take exercise rapidly increases. With regard to the character of the sputum, in almost every case treated tubercle bacilli were present in larger or smaller quantities. At the commencement of treatment they are found to be outside the pus-cells for the most part; but as it progresses and the amount of sputum diminishes, the number of tubercle bacilli in each field gets markedly less, and the bacilli are found now to be enclosed within the pus-cells, pointing to a change either in the bacilli or in the leucocytes permitting phagocytosis. Also with the ordinary Ziehl-Neelsen method of staining the characteristic behaviour of the bacillus is altered in that its acid-fastness is lost, the inference being from both these observations that the waxy envelope of the bacilli is dissolved, and they no longer resist the phagocytic action of the leucocytes and the action of the acid.

As regards the weight of the patient, it is exceptional to find a very great increase, but on an average, after a few weeks' treatment, there is usually some increase. The general condition of the patient very markedly and rapidly improves, so that the elasticity of health is regained after perhaps years of the limited existence which the consumptive patient enjoys.

My experience up to the present leads me to consider contra-toxin as the best method of treatment before the medical public at the present time, and one which can readily be combined with sanatorium or other procedures of general hygienic management. It is certainly very much simpler to administer this serum, and very much less irksome to the patient than a course of tuberculin would be. The average results practically are as good, or better, than those obtained in the small proportion of cases that recover perfectly under the tuberculin treatment, and it will probably be found that the duration of treatment is much shorter.

PERSONAL OPINIONS.

THE TUBERCULOSIS PROBLEM IN WALES.

By Dr. E. WALFORD,

Medical Officer of Health, City and Port of Cardiff.

I have dealt fully with the question of sanatorium benefit in Wales in a paper presented to the recent Congress of the Royal Sanitary Institute at Exeter, of which this communication is in great part an abstract.

The practical aspects of the tuberculosis problem in Wales differ considerably from those presented in England. In Wales we have less of the Local Government Board and more of the Insurance Commissioners than in England. The distribution of grants in aid to sanatoria and other institutions is in the hands of the Commissioners, and it is provided in the Insurance Act that the Commissioners, in making these grants, must have regard to the provision of such institutions by any association established for Wales by Royal Charter. The King Edward VII. Welsh National Memorial Association has complied with this condition, and has obtained a charter and has collected about £200,000. This Association is placed in a peculiar position, being a voluntary Association with intimate official connection with the Insurance Act. The Insurance Commissioners have therefore official dealings with the Executive of the Memorial Association, and this is plainly set forth in their circulars and memoranda. The result is that an endeavour is being made, and apparently with success, to group together all the Counties and County Boroughs in Wales, including Monmouthshire, for the provision of institutional treatment of tuberculosis.

The Insurance Committees are to be grouped together in the same way. The Insurance Commissioners, in a recent memorandum, suggest that all the Welsh Insurance Committees should make arrangements with the Memorial Association, and pay over to the Association a sum equivalent to ninepence per insured person, subject to a small deduction for administrative expenses, in consideration of the Association providing institutional treatment. It is also suggested that if the Welsh Councils enter into agreements to pay half the deficits caused by the treatment of dependants and all classes, the Commis-

sioners will pay the other half. All this money, therefore, goes into a pool, to be dealt with by the Memorial Association, subject to some control by the Insurance Commissioners. The Commissioners also state that the share to be paid by each County Council is to be proportional to the assessable value of the Council's area, and not to exceed the product of a halfpenny rate, and that agreements may be prepared providing that a sum at least equal to the rate raised by each Council should be spent on the provision of treatment for persons resident in the Council's area. How these latter conditions are to be complied with is not clear. This arrangement is considered by the Commissioners to be placing the campaign on a national basis. The magnitude of the operations contemplated may be judged by the fact that the population of this combination amounts to 2,420,921, the approximate number of insured to 679,000, the amount available for sanatorium benefit to £42,437, and the amount for institutional treatment to £25,462 10s. To this amount must be added, of course, the contributions from the rates and the Treasury grants. The product of a halfpenny rate in Wales is estimated to be £24,000. If to this is added an equivalent Treasury grant, the annual amount for treatment would be approximately £75,000.

The essential difference between the English and Welsh methods of administering sanatorium benefit, and of treating tuberculosis generally, is that in England the Councils of Counties and County Boroughs have for the most part followed the advice given by the Local Government Board and Departmental Committee to the effect that "the organization of schemes throughout the country can best be carried out if undertaken by local authorities," and that the "Councils of Counties and County Boroughs, or combinations of these bodies, should formulate complete schemes, even though parts of such schemes may in some instances be carried out by voluntary agencies." It is intended in England that the complete control of the entire scheme for each County or County Borough area or group of areas should be in the hands of the Councils of these areas, and I think very properly so. The Local Government Board state definitely that "the organization of schemes must be undertaken as part of the public health administration of the area to which they relate, and the Medical Officer of Health should be the chief executive and organizing officer." Where voluntary agencies give their help, they give it to the Councils of Counties and County Boroughs, who pay the agencies for work done. The Insurance Committees also make arrangements for the treatment of the insured and their dependants directly with these Councils, who therefore keep control of the whole machinery.

In Wales the Insurance Commissioners have practically insisted upon the Insurance Committees making arrangements for treatment

directly with the Memorial Association, and upon the Councils contributing out of the rates to a common fund, all to be placed at the disposal of the Association, who also receive directly all Treasury grants through the Welsh Commissioners. By this arrangement the Councils of Counties and County Boroughs are relieved of all responsibility except that of providing enough money to keep the Association going. Many consider this a defective arrangement, interfering somewhat with the autonomy of the Councils as Health Authorities. It is, I think, also a bad arrangement from the point of view of the Association, who are dependent upon the Councils for the greater part of their funds, and whose connection with these Councils is of the loosest and most uncertain kind. Already internal disturbances and storms threaten the unity of action, and at any time a county may break away from its moorings. No one can, of course, complain of the action of the Memorial Association. The objects and aims of the promoters are most praiseworthy and excellent, and they have only the interest of the public in view; but some exception may be taken to the action of the Insurance Commissioners, who are really responsible for the adoption of a scheme which has placed the Welsh County and County Borough Councils in an anomalous position. However, it is probable that when these bodies thoroughly realize and appreciate the situation in which they are placed, they will assume the control which they should never have relinquished, and will themselves formulate a scheme on national and rational lines for dealing with this important subject.

Personally, I am strongly of opinion that in large towns, at any rate, the Medical Officer of Health should not undertake the treatment of patients. He has plenty of other things to do in connection with the prevention of disease, and should leave the cure or medical treatment of them to those who are constantly engaged in the practice of curative medicine. He should, however, be responsible to his Council for the proper administration and organization of the dispensary and correlated public health work. The Departmental Committee are, I think, right in stating that the bodies legally responsible for the establishment and maintenance of the tuberculosis dispensary should be the Councils, and that these bodies should occupy an important position in any general scheme dealing with tuberculosis. The Local Government Board even advise that in many cases it may be desirable for the tuberculosis officer to act as an officer of the sanitary authority, and to carry out under the Medical Officer of Health some of the duties devolving upon that officer under the Tuberculosis Regulations.

As to the actual arrangements being made for treatment by the Welsh National Memorial, these can be concisely summarized thus: Wales and Monmouthshire are divided into thirteen areas. The

medical staff consists of medical director and sixteen tuberculosis officers or physicians, with a suitable number of nurses. There are thirteen dispensaries, or institutes, and several visiting stations. It is proposed that there shall be the following sanatoria: One for South Wales, providing for 250 adults and 50 children; one for North Wales, providing for 150 adults and 30 children; and one for West Wales, providing for 50 adults. There are to be thirteen hospitals for advanced cases. Of capital expenditure the Memorial Association is to provide two-fifths and the Treasury grant three-fifths.

INSTITUTIONS FOR THE TUBERCULOUS.

THE DEVON AND CORNWALL SANATORIUM FOR CONSUMPTIVES, DIDWORTHY, SOUTH BRENT.

THE Sanatorium was opened in 1903, and has at present accommodation for sixty-seven patients—thirty-nine males, twenty-eight females. It stands in its own grounds of 70 acres, is situated 700 feet above sea-level on the borders of Dartmoor. The climate is equable, the air very pure, subsoil sand and gravel, which causes the ground to dry very rapidly after rain. The nearest station is Brent on the G.W.R., one and three-quarter miles distant.

The institution is maintained partly by voluntary subscriptions and partly by moneys received from contributions from local authorities. It is intended for those who are in the first stages of the disease, and are unable to pay for treatment in a private institution. Seventeen tickets of recommendation, or £18 in cash, entitle a patient to receive three months' treatment if resident in the counties of Devon and Cornwall. For those outside these counties, twenty tickets, or £20, are required for three months. The Sanatorium has been approved by the Local Government Board for the treatment of patients under the National Insurance Act. The President of the Sanatorium is the Right Hon the Earl of Mount Edgcumbe; the Chairman, R. Hogarth Clay, Esq., M.D.; and the Hon. Treasurer, H. Cecil Wills, Esq. Dr. W. B. Livermore is the Medical Superintendent, and Miss Hilson is the Matron.

Further particulars may be obtained on application to the Central Offices at Law Chambers, Princess Square, Plymouth.

S. CARLILE DAVIS,
Secretary of the Sanatorium.

Photo by] [*W. R. Gay, South Brent.*

THE BOROUGH OF PLYMOUTH KING EDWARD VII. MEMORIAL PAVILION AT THE DEVON AND CORNWALL SANATORIUM, DIDWORTHY, SOUTH BRENT.

NOTICES OF BOOKS.

SANATORIA AND THE STATE.

THE advent of the National Insurance Act, with its provision for the diagnosis and treatment of tuberculous cases and the establishment of dispensaries, sanatoria, hospitals, homes, and other institutions for their care and control, has aroused widespread interest in the various aspects of the tuberculosis problem. It is well that at this important juncture there should be the fullest discussion of all matters relating not only to the pathology of tuberculosis, but dealing with the organization and administration of methods and measures aiming at the assistance of the tuberculous and the ultimate arrest of tuberculosis. We therefore welcome such a work as that which Dr. Vere Pearson has just published.[1] It is a compact, critical, outspoken, practical monograph on the relation of the State to "sanatorium benefit" and the provision of sanatoria. Many enthusiasts write and talk as though tuberculosis would speedily be an obsolete ill. Dr. Pearson is too sane and scientific a student of tuberculosis to be carried off his feet by any gusts of mere sentimental enthusiasm. He points out very wisely that in the campaign with tuberculosis "much is still only just being begun." Dr. Pearson first states the reasons which make it necessary for the State to provide and maintain sanatoria, and then outlines what is being done in this direction both at home and abroad. He clearly sets forth the conditions under which State sanatoria may be financed and efficiently controlled. But it is realized that there are other agencies besides the sanatorium which are of service in combating tuberculosis, and these are referred to. The so-called principles which the author considers should be followed in constructing and managing State sanatoria are clearly explained, but exception is likely to be taken to some features of the plans presented and some of the procedures advocated. Dr. Pearson has clear vision as to lines of advance: he anticipates and apparently welcomes the gradual disappearance of efforts of voluntary charity, and their displacement by organized public relief; the transition of public relief through an optional and partial stage to one of compulsory and universal application; the recognition of the advisability of having, for purposes of economy and efficiency, an overseeing central authority with adequate powers of inspection and control over the local authorities, who, as a rule, have originally had the sole responsibility of looking after the destitute and sick; and the gradual disappearance of civil disabilities attaching to public relief. It is customary to speak of the tuberculosis dispensary as the most important factor in the tuberculosis organization; but although Dr. Pearson seems to approve it as a co-ordinating centre, he is not blind to its limitations: "I am not a believer in using it as a centre for

[1] "The State Provision of Sanatoriums." By S. V. Pearson, M.D. (Cantab.), M.R.C.P. (Lond.). Pp. viii + 80, with 4 plans. Cambridge: The Cambridge University Press. 1913. Price 3s. net.

treatment unless sanatorium treatment is impossible, because it leaves the patient in his original physical, emotional, and mental environment, and because, if so used, tiring and therefore injurious journeys to the dispensary are often incurred for advice, for tuberculin, or for a bottle of medicine. The medicine will probably do more harm than good, because it often does nothing but allay symptoms and divert attention from the advice. Each dispensary should be provided with several beds, into which patients may at once be taken for observation. Periodic temperature readings carefully taken while at rest for a few days constitute a most helpful aid to diagnosis. The dispensary must aid the early transference of the patient from his home to a sanatorium, and under no circumstances must it act so that the treatment at sanatoriums is deferred or an attempt made to do without it." All this is particularly well expressed. We could wish that Dr. Pearson's wise words on the relation of the general practitioner to the developing national scheme for dealing with tuberculosis could be considered by every doctor throughout the land. They are so sensible that we venture to quote them here: "The parts which the general practitioner, the medical officer of health, and the special tuberculosis officer respectively have to play are at present somewhat indefinite, and are likely to remain ambiguous and variable until certain transitions have occurred. At the present moment it is still all too true that a great many practitioners are ill-grounded in the fundamental principles underlying the early diagnosis and proper treatment of tuberculosis. Again, most medical officers of health are experienced more in administrative than in clinical work, or at all events they have not, as a rule, any extensive training in treating those with lung disease. And the number of thoroughly competent tuberculosis officers is admittedly too few. The majority of general practitioners apparently has not yet grasped the probable trend of events. For last year our British Medical Association, although many of the claims it put forward were quite sound, in its efforts to forward an anti-tuberculosis scheme in accordance with the Government's plan and with its own wishes, seemed frightened of change and too apprehensive of doing damage to the welfare of the private practitioner remunerated by the sick according to visits paid. And plenty of practitioners are to be found bemoaning that soon there will be nothing left for them to do when, to quote from a general practitioner's recent letter to the Press, 'the Public Health Department have robbed us of most of our infectious cases; the educational authorities are threatening to provide their children with medical treatment; the State is appointing whole-time officers to man tubercular dispensaries, where tubercular cases will be treated.' . . . In this scheme the medical officer of health, the tuberculosis officer, and the general practitioner must each bear his part: the first as co-ordinator and general administrative adviser; the second probably filling the place of consultant diagnostician, examiner of contacts, and adviser as to the best line of treatment to adopt; while the third, probably aided by a nurse, will chiefly be concerned in looking after the home conditions." Dr. Pearson's monograph is a timely disquisition and appeal which should be read and pondered by all interested in the tuberculosis problem. There is a short bibliography, and several suggestive plans are provided.

THE TUBERCULOSIS MOVEMENT IN WALES.

The Principality of Wales has entered upon a comprehensive and apparently efficient scheme which aims at the prevention and abolition of tuberculosis. The King Edward VII. Welsh National Memorial Association has wisely taken the form of an organized national campaign to eradicate tuberculosis in Wales and Monmouth. The first report of this patriotic and scientifically designed movement has just been issued, and all concerned in its preparation and the conduct of the work it describes are to be warmly congratulated.[1] Dr. Marcus Paterson, as Medical Director, has gathered together an able medical staff, and in association with members of the administrative and educational staffs, and with the generous aid of Mr. David Davies, M.P., the President, and other supporters, has succeeded in a remarkably short time in initiating agencies which in the near future will accomplish much for Wales, and will also serve in some measure as a model for other parts of the Empire. The report is in every way admirable, and in tuberculosis literature is certainly unique and epoch-making.

THE RECOGNITION OF PULMONARY TUBERCULOSIS.

Last year's Bradshaw Lecture of the Royal College of Physicians of London, delivered by Dr. David Bridge Lees, has recently been issued in book form.[2] It is a valuable contribution to the clinical study of pulmonary tuberculosis. Dr. Lees holds that the existence of an incipient pulmonary tuberculosis can be easily demonstrated by careful percussion (provided that during the examination of the front of the chest the patient *is in the recumbent position*, with relaxed muscles) long before any bacteriological evidence is obtainable, and while the auscultatory evidence is still insufficient for a diagnosis. Most expert clinical workers with consumptive cases consider auscultatory examination of the lungs much more helpful and generally reliable than that by percussion. Dr. Lees' contention and his explanation of his procedure, here given in detail, merit thorough study. He wisely urges that "a negative bacteriological report is often fatally deceptive, and that to wait for the demonstration of bacilli in the sputum is like postponing the diagnosis of cancer until the glands are involved." This is a truth which general practitioners should heed. Dr. Lees' views on the value of antiseptic inhalations are well known, and in his book he sets forth cases to establish his claim that "in the earliest stage of a pulmonary tuberculosis it is always possible, and in a somewhat later stage usually possible, to obtain prompt and permanent arrest of the disease by the employment of the method of continuous antiseptic inhalations."

[1] The King Edward VII. Welsh National Memorial Association (The Prevention and Abolition of Tuberculosis). Incorporated by Royal Charter, May 17, 1912. Report of the work done by the Association from September, 1910, to March 31, 1913. Pp. 147+16. Cardiff: Memorial Offices, Westgate Street. 1913.

[2] The Bradshaw Lecture on "The Diagnosis and Treatment of Incipient Pulmonary Tuberculosis." By David Bridge Lees, M.D. (Cantab.), F.R.C.P. (Lond.), Consulting Physician to St. Mary's Hospital, and to the Hospital for Sick Children, Great Ormond Street. Pp. viii+116. London: H. K. Lewis, 136, Gower Street, W.C. 1913. Price 5s. net.

MANUALS FOR MEDICAL PRACTITIONERS, AND WORKS OF REFERENCE.

Climatology is a subject which every student of tuberculosis must consider if he would understand aright how to deal with tuberculous cases. Dr. William Gordon has devoted much study to medical aspects of climatology, particularly in regard to the influence of winds, and therefore his new work on climatology in medicine should receive respectful consideration by all medical practitioners.[1] We particularly commend it to the notice of all physicians in sanatoria or elsewhere dealing with consumptive cases. Dr. Gordon ably sets forth the great importance of climatology in medicine, and "the seriousness of its present neglect." He argues for the recognition of a new principle in climatological investigation—namely, the principle of approximate isolation of influences. He holds that there is an "absence of any valid evidence that altitude *per se* affects the prevalence of phthisis." There is reference also to the influence of rain-bearing winds on pulmonary tuberculosis.

The Smithsonian Institution of the city of Washington has just published a suggestive study on the atmosphere and health.[2]

Dr. E. R. Lyth has recently published a monograph on his long-extended studies of thermal environment which will interest all students of tuberculosis, for it indicates methods and results which should form a basis for further observation of patients in sanatoria.[3] Dr. Lyth's work is the outcome of 25,000 observations of pulse-rate, blood-pressure, and superficial and deep temperatures under various conditions. He deals with the development of the "hot" and "cold" conditions; indicates the significance of changes observed in cardio-vascular states; discusses the redistribution of internal heat after exposure to cold, the equilibration of production and loss of heat and the like; furnishes valuable data regarding the influence of baths, hot, warm, and cold, on the body, and changes of the circulation in a varying thermal environment. The work is a fine record of painstaking research by a busy general practitioner.

All concerned in the preparation and issue in English dress of Professor De Quervain's fine practical work on clinical surgery are to be congratulated. The volume is a handsome one, admirably printed, and lavishly supplied with illustrations.[4] The work is intended to

[1] "The Place of Climatology in Medicine," being the Samuel Hyde Memorial Lectures read before the Section of Balneology and Climatology of the Royal Society of Medicine, May 20 and 21, 1913. By William Gordon, M.A., M.D., (Cantab.), F.R.C.P. (Lond.), Physician to the Royal Devon and Exeter Hospital. Pp. v+62. London: H. K. Lewis, 136, Gower Street, W.C. 1913. Price 3s. 6d. net.

[2] "The Influence of the Atmosphere on our Health and Comfort in Confined and Crowded Places," by Leonard Hill, Martin Flacke, James McIntosh, R. A. Rowlands, and H. B. Walker. From the Physiological Laboratory of the London Hospital Medical College. Pp. 96. Smithsonian Miscellaneous Collections, vol. lx. No. 23. City of Washington, U.S.A. Published by the Smithsonian Institution. 1913.

[3] "Studies on the Influence of Thermal Environment on the Circulation and the Body-Heat." By Edgar R. Lyth, M.B. (Durham), M.R.C.S. (Eng.). Pp. vii+72. With 15 charts. London: John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 2s. 6d. net.

[4] "Clinical Surgical Diagnosis for Students and Practitioners." By F. De Quervain, Professor of Surgery and Director of the Surgical Clinic at the University of Basle. Translated from the fourth edition by J. Snowman, M.D. Pp. xv+779. With 510 illustrations and 4 plates. London: John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, W. 1913. Price 25s. net.

serve as a guide to students and practitioners in the vast field of surgical diagnosis, and is based on a wide and varied experience as surgeon and teacher. The book differs considerably from the ordinary manuals of surgical diagnosis, but in arrangement, substance, and method of presentation it provides just what the senior student and newly qualified practitioner desires to fit him for clinical examinations and effective surgical practice. The illustrations, numerous and well selected, are a special feature of the volume, and form a veritable album of clinical surgery. Special attention has been devoted to tuberculous lesions, the index giving no less than 110 references.

Drs. Ramaley and Griffin have produced a large and ambitious work "for the general public and for use as a text in college classes."[1] They seek to set forth the best conclusions of modern researches regarding the prevention of disease in a manner which any intelligent citizen may understand. The work presents in lucid language the essential principles of pathology and hygiene. Then follows a series of chapters on colds and their like, typical filth diseases, small-pox and vaccination, wound infections, diphtheria and pneumonia, contagious diseases of childhood, yellow fever and malaria, cancers and tuberculosis. Three chapters are devoted to the latter, and furnish a thoroughly serviceable exposition of just such practical points as every intelligent man and woman should appreciate.

Mr. Mansell Moullin has issued his Bradshaw Lecture on "The Biology of Tumours" in monograph form.[2] It is a suggestive contribution to the perplexing study of neoplastic formations.

Dr. Wanklyn has prepared a handy little guide to public health administration, which medical officers and others dealing with or studying sanitary matters in the Metropolis will find of much practical service.[3] The manual provides a list of the principal London public health authorities, with an account of their origin and functions; and furnishes a guide to the services dealing with health matters, with particulars of the appropriate authorities and the legislative powers under which they act. There is also a useful chronological list of Acts of Parliament, with references to events bearing on London public health administration.

The Local Government Board have wisely arranged for the separate issue of the sections of their Forty-Second Annual Report which deal with housing and town-planning.[4] This publication is one which tuberculosis officers and all concerned for the arrest of tuberculosis will do well to study.

[1] "Prevention and Control of Disease." By Francis Ramaley, Ph.D., Professor of Biology in the University of Colorado, and Clay E. Griffin, B.A., M.D., Instructor in Surgery in the University of Colorado. Pp. 386. Published for the Author by the University of Colorado. Boulder, Colorado, U.S.A. 1913. Price $3.00.

[2] The Bradshaw Lecture on "The Biology of Tumours." Delivered at the Royal College of Surgeons of England, on Thursday, December 5, 1912. By C. Mansell Moullin, M.A., M.D., F.R.C.S., Consulting Physician to the London Hospital. Pp. 39. London: H. K. Lewis, 136, Gower Street, W.C. 1913. Price 2s. net.

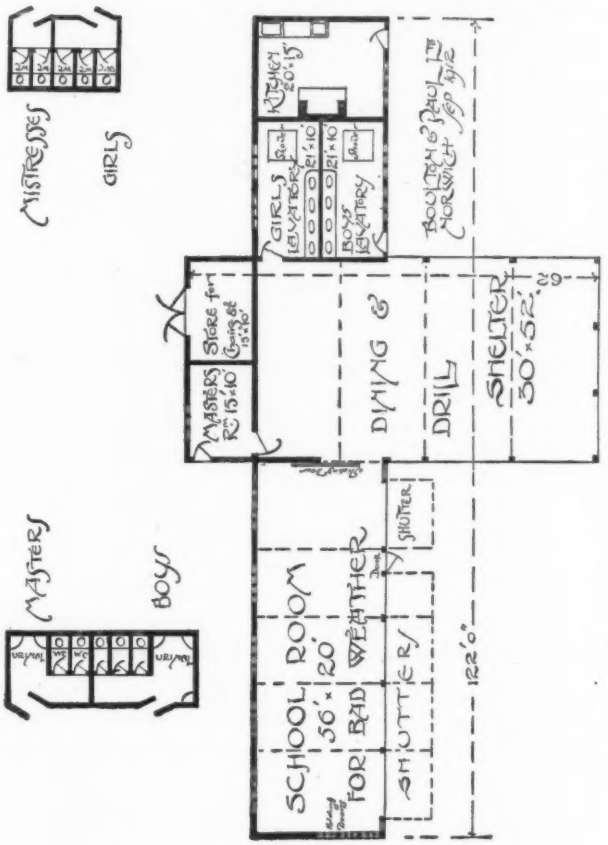
[3] "London Public Health Administration." A Summary showing the Principal Authorities, with their Origin, Services, and Powers. By W. McC. Wanklyn, B.A. (Cantab.), M.R.C.S., L.R.C.P., D.P.H. Pp. 59. London: Longmans, Green and Co., 39, Paternoster Row, E.C. 1913. Price 2s. 6d. net.

[4] Forty-Second Annual Report of the Local Government Board, 1912-1913. Part II.: Housing and Town-Planning. Pp. lxxii+67. London: Wyman and Sons, Ltd. 1913. Price 7d.

PREPARATIONS AND APPLIANCES.

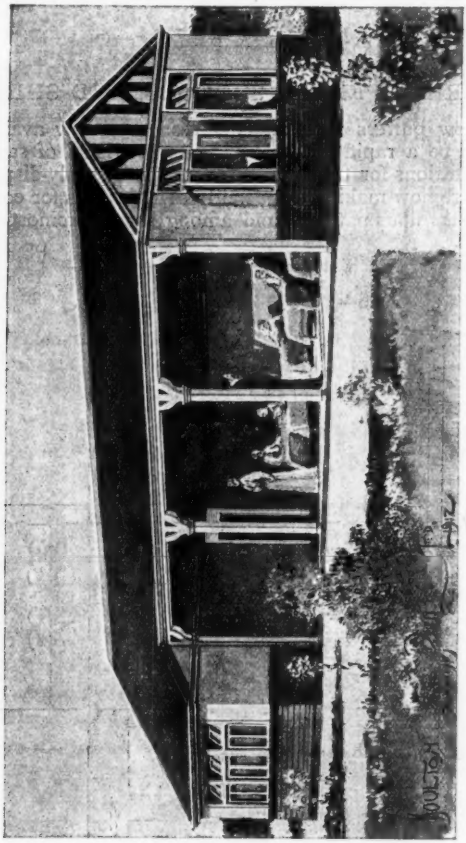
SANATORIA, OPEN-AIR SCHOOLS, AND SHELTERS.

WITH the new powers and financial resources now available, there will certainly be a rapid extension in the provision of sanatoria and hygienic habitations for tuberculous and tuberculously-disposed cases. Many firms are now making a speciality of structures for consumptives and other tuberculous patients, and among them foremost place must



PLAN OF OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN.

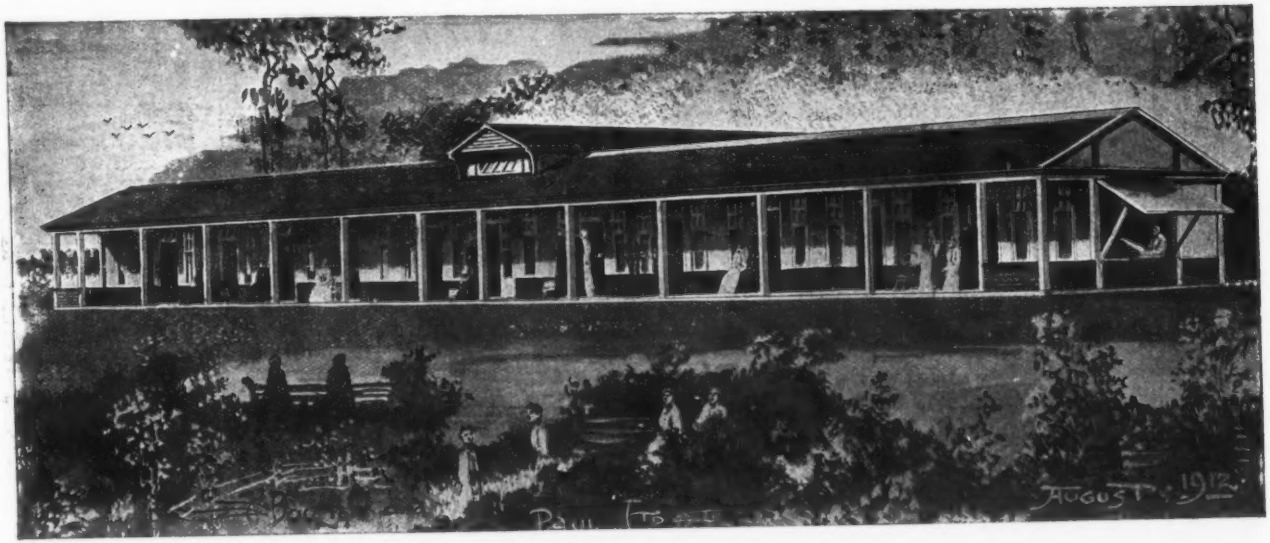
be given to the old-established firm of Messrs. Boulton and Paul, Ltd., of Norwich.[1] Through the courtesy of this firm we are enabled to give illustrations of designs of an up-to-date sanatorium, two designs of



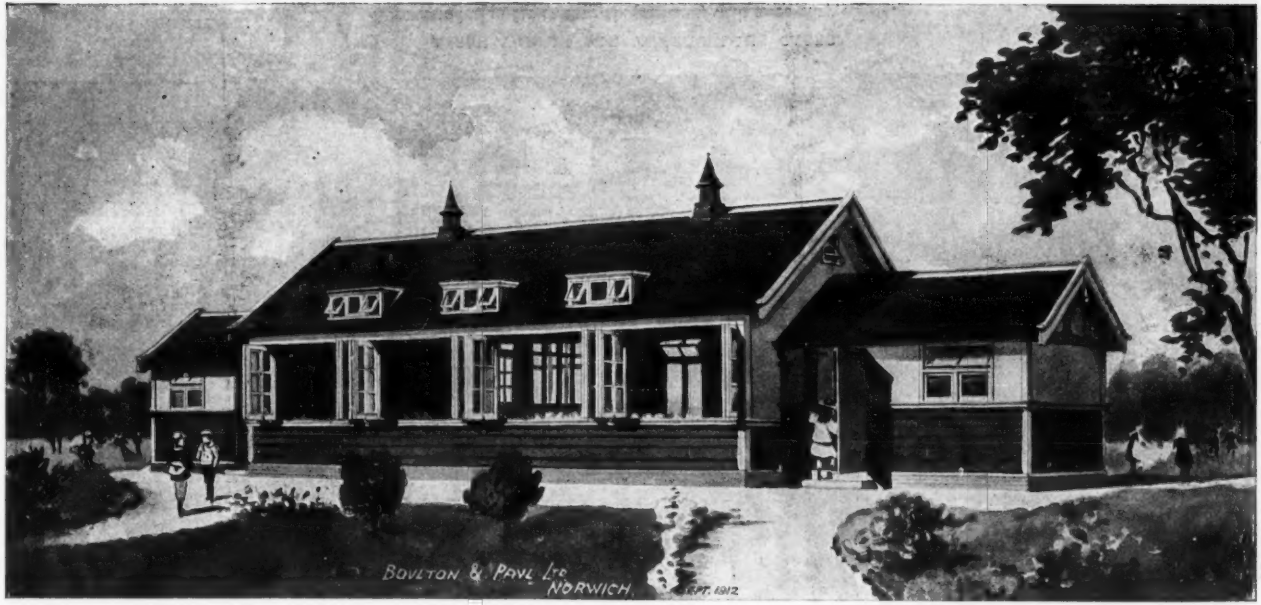
SLEEPING SHELTER, WITH RESTING AND SLEEPING ACCOMMODATION.

open-air schools, and a simple form of sleeping shelter for consumptive patients.

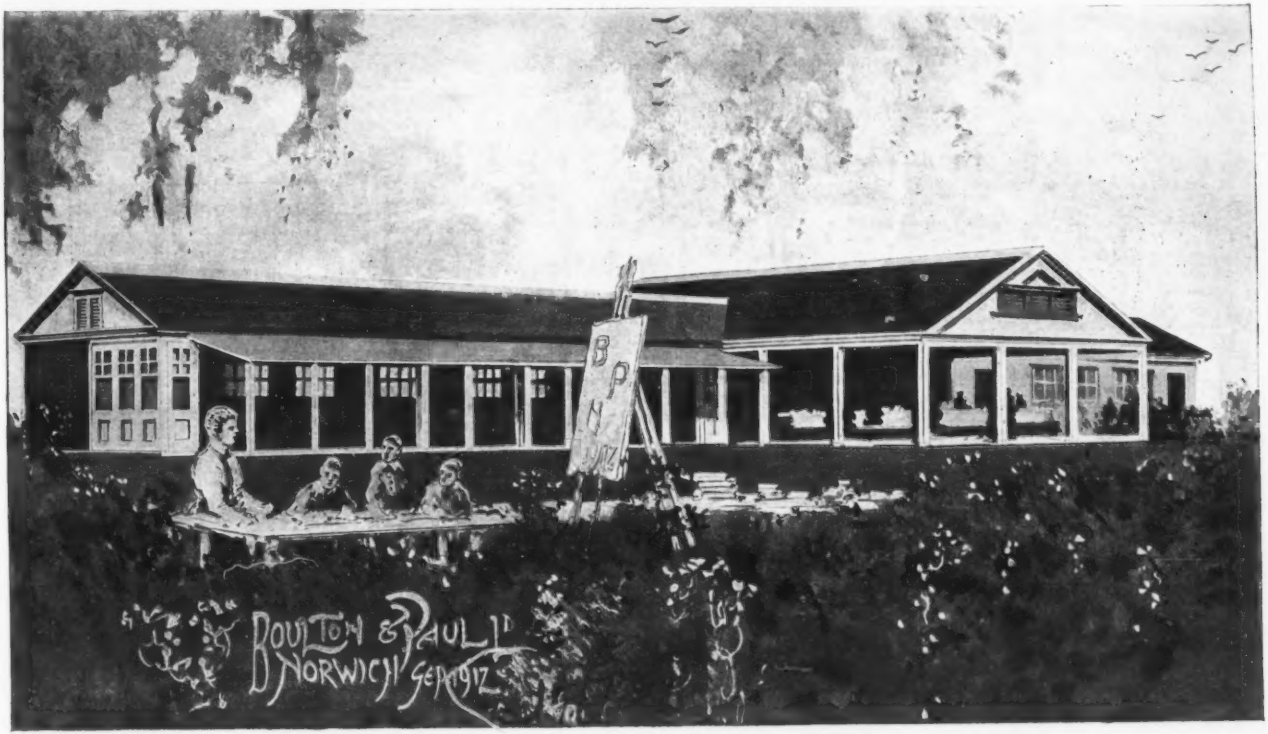
[1] Messrs. Boulton and Paul, Ltd., Rose Lane Works, Norwich (London office: 126, Queen Victoria Street, E.C.), have issued several special illustrated catalogues which we commend to the notice of all tuberculosis officers and others interested in provision of sanatoria and the like.



A SANATORIUM FOR TUBERCULOUS CASES.
Accommodation for twenty-six patients, with necessary offices.

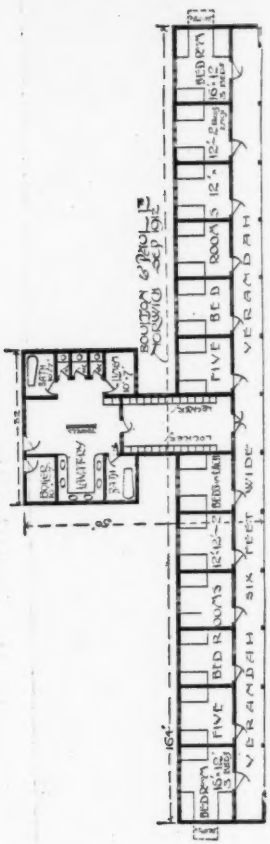


AN OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN.

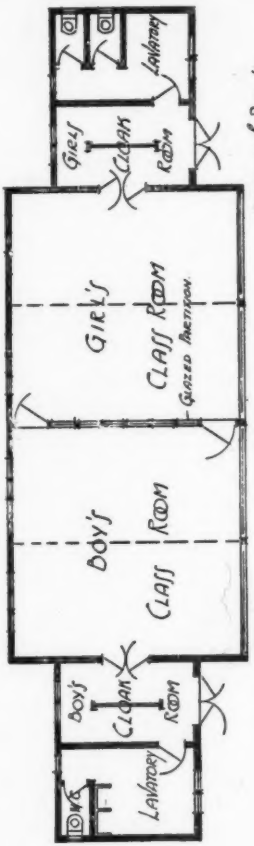


OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN.

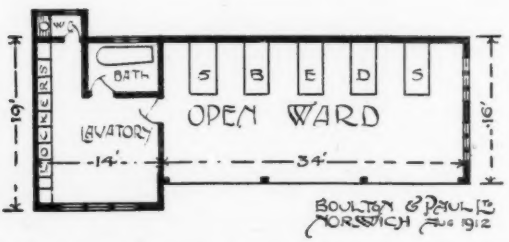
This design provides for shelter in bad weather and accommodation for meals.



PLAN OF SANATORIUM FOR TWENTY-SIX TUBERCULOUS PATIENTS.



PLAN OF SMALL OPEN-AIR SCHOOL FOR TUBERCULOUS CHILDREN.



PLAN OF SIMPLE SLEEPING SHELTER FOR CONSUMPTIVES.

HYGIENIC CLOTHING.

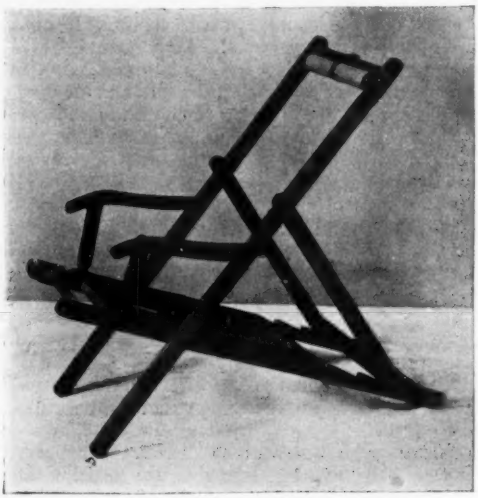
At this time of the year especially, it is wise to give thorough consideration to the equipment of tuberculous and tuberculously-disposed cases, and of all who follow open-air methods of life. Fortunately, there is now no difficulty in getting every requisite variety of hygienic clothing. At the present we would direct attention to the admirable and artistic overcoats and garments of all kinds now supplied by Messrs. Burberry.[1] Burberrys have certainly done much by the invention of their weatherproof garments to provide open-air patients with comfortable and pleasing attire. They have enabled both sexes to live in the open air in all weathers and climates, efficiently protected from rain and cold by light-weight, warm, and perfectly ventilated coverings, which obviates overheating of the body and consequent risk of chill. As a measure of practical prophylaxis, "Burberry" is probably prescribed by the medical faculty as often as any other specific, and it can be safely accepted as a truism that the air-free, proofed materials of the great firm of specialists have done much to popularize out-door methods of life. The open-air cannot be enjoyed, nor in our capricious climate scarcely endured, unless protection is afforded by clothing of an adequate scientific kind. Chills are not only liable to be in themselves a source of danger to the respiratory system, but they produce a morbid state of tissue which encourages susceptibility to infection by tubercle in its most fatal situation, and lessens the chance of a consumptive patient effecting a release from the clutches of his enemy. It is therefore necessary that every care should be taken to enable patients to brave the vagaries of weather and temperature, not only in comfort, but in absolute security from all the ill-effects so frequently traceable to exposure in unhygienic attire. Burberrys provide a means whereby we can be independent of the weather and live out of doors under rain, snow, or sunshine, as comfortably and safely as in a warm, dry, and airy room. The reason why Burberry weatherproofs command the confidence of health advocates as well as sportsmen seems to be because they are endowed by special weaving and proofing with protective qualities which distinguish them from every other means of obtaining adequate security in a perfectly healthful form. The garments have non-absorbent and wet-repelling agents ingrained by three distinct processes throughout every thread and fibre of their substance. These cloths are airy-light, of fine, flexible nature, warm, and non-conductive. They preserve normal temperature and minimize fatigue without inducing chills by overheating a tired body or confining its poisonous exhalations. Experience will prove the truth of these contentions.

CHAIRS FOR THE OPEN-AIR LIFE.

During recent years many varieties of chairs and resting-couches have been introduced for use in sanatoria, open-air schools, and for the convenience of tuberculous patients and others who are wise enough to adopt open-air methods of life. Our attention has recently been drawn to two new types of chair, both of which present special features.

[1] Illustrated catalogues of the Burberry Clothing may be obtained on application to the head offices, Haymarket, London, S.W.

THE "HYGIENE" DRY-SEAT CHAIR,[1] as will be seen from the accompanying illustration, has an ingenious arrangement whereby the canvas portion of the hammock chair can be mechanically wound up and retained, locked if desirable, sheltered from damp, rain, snow, or the like, and protected from the incursions of birds, dogs, or other animals which might foul it. This provision allows of the chair being always dry and clean and ready for use. The chair is therefore an ideal resting-place for use in the garden, on deck, or elsewhere out of doors.



THE "HYGIENE" DRY-SEAT CHAIR.

Moreover, there is a simple but ingenious contrivance on the back-stay of the chair, whereby the seat when occupied is kept rigid in position, and all possibility of collapse from slipping prevented. The wood framework of the chair is made of well-selected birch, hand-polished, and the fittings are coppered, while the canvas is of rot-proof material. Altogether, this Dry-Seat Chair is excellent for use by patients, and we commend it strongly.

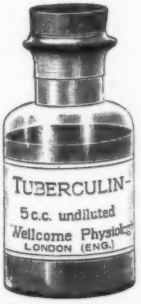
Another special form of chair to which attention should be drawn is the PATENT "QUIDOS" LIFE-SAVING CHAIR.[2] This ingenious contrivance offers several special points. In general form it is of the hammock type, but the hammock portion consists of double Willesden waterproof canvas back divided into sections, each of which is filled with granulated cork. The ends of the continuous hammock portion are supplied with eyelets, and provide for easy lacing. It will be seen

[1] Full particulars regarding the "Hygiene" Dry-Seat Chair may be obtained from the Hygienic Chair Company, 16, Warmington Road, Herne Hill, London, S.E.

[2] The Patent "Quidos" Life-Saving Chairs and other hygienic material likely to be of service in sanatoria and open-air schools are manufactured by the patentee, Mr. Leoline Edwards, St. Margaret's Road, Twickenham, London, S.W., from whom full particulars may be obtained on application.

at once that the essential portion of the chair is thus capable of being rolled round, reversed, or quickly detached. When used with the chair in the ordinary way it provides a comfortable, dry, and easily movable support; when detached and spread out on the ground it forms an excellent resting or sleeping mattress; and in case of need it can be employed as an effective life-protector. It is said that one of these Life-Saving Chairs will support two persons in the water. Moreover, the chair is thoroughly strong, durable, and portable, and it is not expensive. For sanatoria established on board ships or for open-air schools on river steamers, as well as for use by all sorts and conditions of persons when yachting, camping, or travelling on ocean, lake, or river, this novel form of life-saving chair is to be strongly recommended. The weight is 14 pounds, and the price 16s. 6d.

REQUISITES FOR THE DOCTOR AND THE PATIENT.



Messrs. Burroughs Welcome and Co. now provide a complete series of "Tabloid" Tuberculins which are thoroughly reliable, and are put up in forms which for convenience can hardly be beaten.[1]

An All-Glass Aseptic Tuberculin Syringe has recently been introduced by Messrs. Burroughs Wellcome and Co., and presents some excellent points which will be of special advantage for practical use in dealing with tuberculous cases in sanatorium, dispensary, and domiciliary practice.[2] The barrel and piston are elongated to about double the length of the ordinary all-glass hypodermic syringe. The barrel is very clearly engraved with numbered gradations of one to ten, and between them the half gradations, each indicating one-twentieth of 1 c.c., are marked. This enables the operator to give the dose desired with great exactness. The piston as well as the nozzle is of deep blue coloured glass, its position can therefore be readily perceived at any moment; and it fits the barrel so accurately down to its base that every drop of the measured dose is injected without difficulty. The various parts of the syringe can be separated very readily, and sterilized by boiling. Owing to the clearness with which even a twentieth part of 1 c.c. can be seen, dilutions can be made very conveniently in the syringe itself, the requisite quantity of a standard physiological saline solution being drawn up into the syringe after the tuberculin has been introduced.

The ingenious, simple, portable, inexpensive, and easily applied clinical tests by means of Endolytic Tubes, introduced by the Endolytic Tube Company, will undoubtedly be of much service, not only in

[1] Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, Holborn, London, E.C., will be glad to send one of their booklets of "Tuberculin" to any medical practitioner.

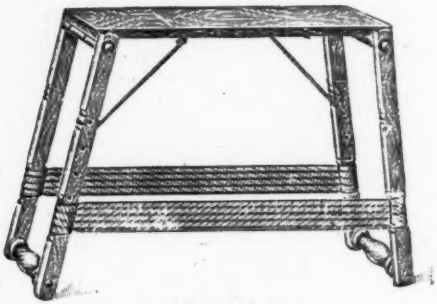
[2] The All-Glass Aseptic Tuberculin Syringe can be obtained direct from Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, Holborn, London, E.C.

the consulting-room and in the hospital ward, but to those dealing with tuberculous cases in sanatoria, at dispensaries or in domiciliary visits. The various reagents are stored ready for use in fine glass tubes, the ends of which can easily be broken to allow of the escape of the contents. The tests are ingenious, delicate, easily applied, thoroughly reliable, and mark a great advance in the application of scientific diagnostic methods in clinical work.[1]

Messrs. Stone and Forsyth, the well-known manufacturers of hygienic specialities, have recently sent us specimens of their new PAPER TOWELS.[2] These will be found excellent for use in hospitals, sanatoria, and open-air schools.

Messrs. William M. Wilson's Sons have sent us specimens of their PAPER HANDKERCHIEFS.[3] These they are supplying extensively to hospitals and sanatoria throughout the United States.

We have recently had an opportunity of testing a novel invention known as the "RESTOOL."[4] Its chief features are indicated in the accompanying illustration. It consists of a simple, easily adjustable



THE "RESTOOL."

contrivance, which can be used as a resting-stool, a back support, a head rest, or writing or drawing board. It can also be readily converted into a baby or child carrier. It will be found invaluable to all lovers of the open-air life, and for camping-out parties, tourists, travellers, and the like; it only needs to be seen to have its many good points apparent. We believe the "Restool" will be much appreciated by patients in sanatoria.

[1] A brochure on "Endolytic Tubes for Clinical Diagnosis" will be sent on application to the sole agents for the United Kingdom, Messrs. E. Reid and Co., 17 and 18, Basinghall Street, London, E.C. The actual tubes are made by the Endolytic Tube Company, Hampton-on-Thames. Price for box of 100 tubes in nickel pocket case, 5s.

[2] Full particulars of the Paper Towels and other hygienic paper goods suitable for use by consumptives will be supplied on application to Messrs. Stone and Forsyth, 67, Kingston Street, Boston, Mass., U.S.A.

[3] Specimens and particulars will be sent on application to Messrs. William M. Wilson's Sons, 225, Dock Street, Philadelphia, U.S.A.

[4] Full particulars regarding the "Suit-all Restool" may be obtained from Mr. Walter Todd, the Laurels, Windmill Lane, Smethwick, Staffs.

LYSOL.

Among the many antiseptic, deodorant, and disinfectant preparations now available, and specially suitable for use in sanatoria and for meeting the needs of tuberculous patients, LYSOL merits particular praise.[1] It has many advantages. It is effective as an ideal cleansing agent and germicide, is non-corrosive to textures and instruments, does not irritate the tissues, is miscible with water in any proportion, and has a special solvent action on mucus and pathological excretions. For use with sputum flasks, Lysol is excellent; moreover, it is only one-eighth as poisonous as carbolic acid, although quite as effective as a bactericide.

HYGIENIC SHAVING.

It is inexplicable how neglectful and forgetful many medical advisers are in regard to the important question of the shaving of male consumptives. In most sanatoria and dispensaries open cases and often patients far advanced in pulmonary tuberculosis may be seen with thick beards and pendulous moustaches. It is impossible for a patient expectorating tuberculous sputum, especially when feeble, to avoid fouling his hirsute appendages. To pay elaborate attention to the cleansing of the hands and other parts of the person, the disinfection of clothes and the furniture of rooms, and to provide for the sanitary collection and safe destruction of tuberculous discharges, and yet to neglect the supervision of sanitary shaving, is to be guilty of a serious error. We have insisted in a previous note (Vol. VI., No. 4, p. 259, October, 1912), that every man who is suffering from open pulmonary tuberculosis should be directed to shave. This hygienic procedure may be conducted with ease and effectiveness by means of the Y.S.C. SAFETY RAZOR.[2] We have used it with complete satisfaction, and consider it in every way the best of the new automatic razors now available. In design, workmanship, and general efficiency it is unrivalled. The shaving blade is double-edged, and consists of a thin, narrow blade which by an ingenious contrivance is made rigid by stretching tight like the string of a bow, and can be adjusted to the requirements of various closeness of shave. The razor is compact, strong, durable, simple in use, easy to clean, requires no stropping or setting, and there is no messy taking apart after use or difficulty in cleansing. Anyone commencing the use of this ideal razor will dispense will all others.

[1] Specimens of Lysol and full particulars can be obtained from Messrs. Charles Zimmermann and Co., 9 and 10, St. Marys-at-Hill, London, E.C.

[2] The Y.S.C. Razor is manufactured by the Yorkshire Steel Company, Ltd. (offices: 30, Holborn, London, E.C.), from whom full particulars can be obtained. Prices 22s. 6d. and 27s. 6d.

NOTES.

EDITORIAL.

THE BRITISH JOURNAL OF TUBERCULOSIS with the present number completes its seventh volume. The past seven years have been critical and highly eventful years in the history of the Tuberculosis Movement in this country. We have travelled fast and far both in thought and action since Koch's epoch-making discovery of the tubercle bacillus. To-day we are come to the beginning of a new era in the campaign against tuberculosis. It is well, therefore, to review our position. The BRITISH JOURNAL OF TUBERCULOSIS was founded in January, 1907. Our "outlook" was clearly indicated in the first number. It may be permissible to make a few quotations: "The tuberculosis problem is essentially a medico-sociological one. It is not merely a puzzle in pathology, but appeals to all sorts and conditions of men as a question of world-wide importance, touching the deepest interests of humanity. To deal adequately with the intricate entanglements of this universal scourge requires keen mental insight and patient toil. The evil cannot be satisfactorily studied as a definite and well-defined ill, but must be tracked and traced in all the perplexing masses of its complex causation, and laid bare in each of its manifold associations. . . . In almost all countries, and among nearly every people, the disease hinders and hampers national progress, and works incalculable domestic misery and individual suffering. Not only is State action imperative for the protection of each country, but international co-operation is essential if such comprehensive and scientifically directed policy is to be adopted as shall make for the extermination of this bane of humanity. . . . Tuberculosis is a malady which not only demands the study of the pathologist and the sanitarian, and the care of the physician and surgeon, but calls for the serious attention of every worker in life's strenuous workshop. For in this campaign everyone should volunteer—the citizen and the statesman, the labourer and the capitalist, the teacher and the scholar, the social reformer of every school and the patriot, whatever his rank or creed. . . . The tuberculosis problem can only be satisfactorily solved by first dissipating those tubercle-producing conditions of life and work which are dependent upon ignorance, apathy, selfishness, and neglect. The arrest and extermination of tuberculosis, if it is ever to be attained, must be by a reform of the human factor and a reconstitution of his environment. This being so, it is clear that the question must be viewed from a broad standpoint. It is to be investigated not as a small field in the wide domain of pathology, but as an integral part of that greatest of all subjects of inquiry—the revelation and restoration of mankind." During the past seven years this journal has striven to set forth the medico-sociological aspects of the tuberculosis problem in a strictly scientific manner, and to assist in every legitimate way the co-ordination of work and the co-operation of workers. Now, with new opportunities and fresh organizations for work, and a rapidly increasing number of trained workers, the march

of the Tuberculosis Movement will be quickened. Every endeavour will be made to make the BRITISH JOURNAL OF TUBERCULOSIS worthy of the cause it seeks to serve, and to this end we earnestly invite the sympathy and support of all workers for the assistance of the tuberculous and the ultimate arrest of tuberculosis. It will greatly help in the maintenance of this journal as an effective organ if Medical Officers of Health, Tuberculosis Officers, School Medical Officers, Medical Superintendents of Sanatoria, and Medical Advisers generally, will not only procure the journal for their own study, but will circulate it among those interested in the scientific investigation of tuberculosis and the rational conduct of the Tuberculosis Campaign. We shall also be obliged if reports and other publications relating to the work of the various hospitals, sanatoria, societies, and other institutions dealing in any way with tuberculosis and the tuberculous, are sent to us as soon after publication as possible. Finally, we desire to welcome all criticisms, suggestions, and any information which in any way is likely to assist this journal in its endeavour to further the Tuberculosis Movement in this land and throughout the Empire.

THE TUBERCULOSIS YEAR-BOOK AND SANATORIA ANNUAL.

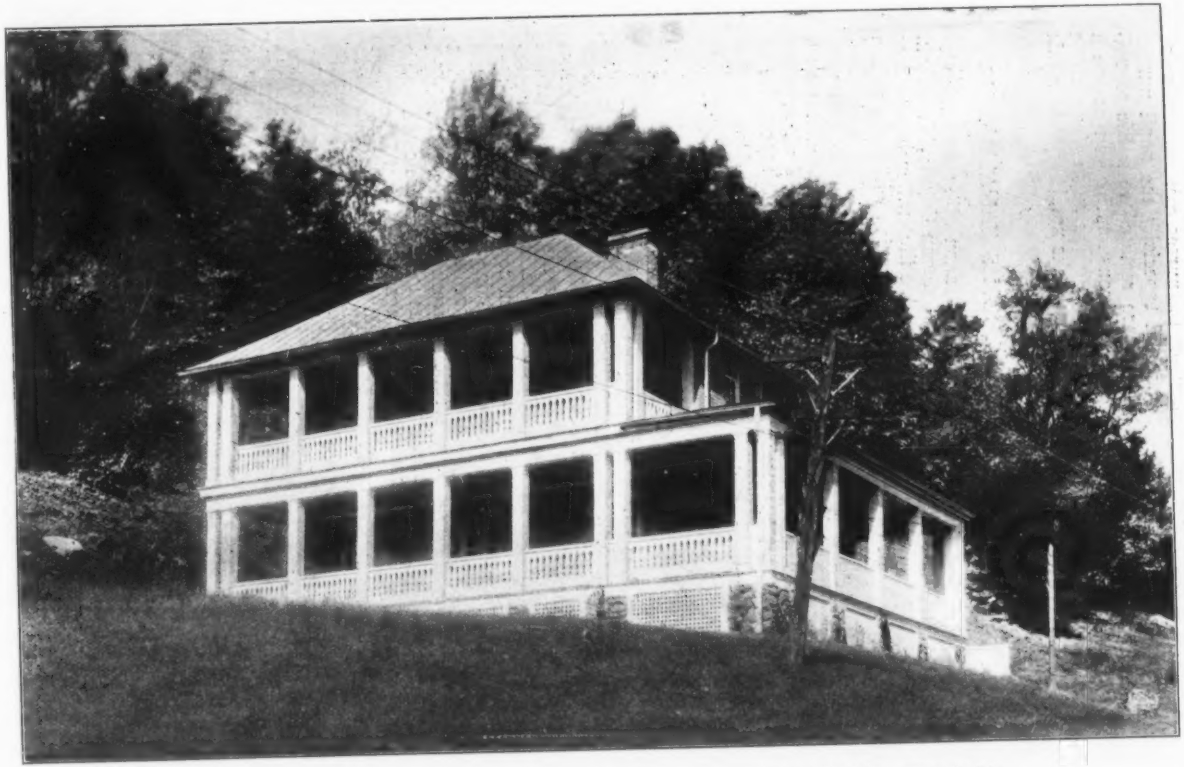
The appearance of the "Tuberculosis Year-Book and Sanatoria Annual" marks the commencement of the new era in this country of the Tuberculosis Movement.[1] The work has been prepared under the editorial oversight of the editor of the BRITISH JOURNAL OF TUBERCULOSIS, and leading experts both at home and in our Overseas Dominions have contributed to its pages. Among those who have written special articles are Sir Thomas Oliver, Sir William J. Thompson, Sir Philip Sydney Jones, Professor G. Sims Woodhead, Professor Sheridan Delépine, Dr. Nathan Raw, Dr. W. M. Feldman, Dr. R. Murray Leslie, Dr. H. J. Gauvain, Dr. T. S. Carrington, Dr. Walter G. Kinton, Dr. J. E. Esselmont, Dr. Egbert Morland, Dr. H. Hyslop Thomson, Dr. W. Leslie Lyall, Dr. George D. Porter, Dr. D. A. McIntyre Sinclair, Dr. J. M. Mason, Dr. A. Jasper Anderson, and Miss Mary Steuart Donaldson. A series of "Critical Surveys" are provided by Dr. James Miller, Dr. O. C. Gruner, Professor E. Emrys-Roberts, Dr. D. M. Taylor, Dr. A. S. Cobbledick, Mr. Adair Dighton, Dr. Newman Neild, Dr. David Bridge Lees, Dr. S. Vere Pearson, Dr. Henry H. Harrower, Dr. David M. Barcroft, and Mr. Walter H. Fearis. A special feature is the description of various "Tuberculosis Schemes," provided by Medical Officers of Health, Tuberculosis Officers, and others, and including Dr. H. E. Cuff, Dr. C. W. F. Young, Dr. John C. Thresh, Dr. F. E. Fremantle, Dr. W. G. Savage, Dr. E. W. Hope, Dr. John Robertson, Dr. H. Scurfield, Dr. D. S. Davies, Dr. Sandys J. C. Holden, Dr. Marcus Paterson, Dr. W. Leslie Lyall, Dr. Alexander Macgregor, and Dr. John T. Wilson. Descriptions, usually signed, are also given of the sanatoria and other institutions for tuberculous cases available in this country. The volume is extensively

[1] "The Tuberculosis Year-Book and Sanatoria Annual." Edited by T. N. Kelynack, M.D. Published by John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, London, W. Price—before publication, 5s. net; after publication, 7s. 6d. net.

illustrated, and contains much general information relating to all aspects of the tuberculosis problem. "The Tuberculosis Year-Book and Sanatoria Annual" is the first attempt to provide a really adequate and authoritative directory to the Tuberculosis Movement in Great Britain and Ireland and our Overseas Dominions, and it is hoped that it will be the first of a series which shall continue an effective service until tuberculosis has become exterminated. The volume is one which will be indispensable to all engaged in the Tuberculosis Campaign.

THE NURSES' HOME AT THE ADIRONDACK COTTAGE SANATORIUM.

The accompanying illustration indicates an interesting extension in connection with the Adirondack Cottage Sanatorium. Dr. E. L. Trudeau has kindly sent us the following particulars and lent us the block, procured through the courtesy of Mr. C. M. Lea, of Messrs. Lea, Febiger and Co., 706, Sansom Street, Philadelphia. "The Nurses' Home was given by Mrs. Whitelaw Reid in memory of her father, Mr. D. O. Mills, and was opened in September, 1912. For a long time it had been evident that something must be done to provide the consumptive with suitable nurses. The registered nurse—that is, the regular hospital trained nurse—will not, as a rule, take charge of tuberculous cases. Whether this be due to fear of infection or to dislike of nursing such chronic and uninteresting invalids it is difficult to say, but it is nevertheless a fact that the consumptive cannot secure in most instances the services of the registered nurse. This being the case, it is evident that some other provision must be made if the consumptive is to be nursed, and what has happened so far is that the bulk of invalids in and about the great health resorts are cared for by untrained nurses—that is, nurses who have got their training as best they could at the bedside of consumptives. Naturally some of these are inefficient and unsatisfactory, owing to their lack of proper training. On the other hand, there are always at the sanatorium a good number of young women who have arrested their disease and are obliged to find some means of supporting themselves after they leave the institution. Some of these are pupil nurses who break down during the regular hospital training, whose health would not permit their completing the training course in a general hospital. Any of these young women, if properly trained, could retain their health and earn a good living as special tuberculosis nurses. The little training school at the sanatorium offers them the necessary education while perfecting their cure, and it is to meet in a small degree the needs of the situation I have described that the Nurses' Home has been established. The course requires two years, and although it is almost entirely confined to practical instruction in the nursing of the tuberculous, it includes lectures on the rudiments of anatomy, physiology, materia medica, and bacteriology, so that when the pupils graduate they are specially well-fitted to care for the tuberculous. The little building at the sanatorium is a substantial and comfortable brick and wood structure. Each nurse has her own bedroom, her own dressing closet with running water, and a sleeping porch with a southern exposure where she can carry out the open-air treatment which is still essential for most of the pupil nurses. On the lower floor is a homelike sitting-



THE NURSES' HOME AT THE ADIRONDACK SANATORIUM, SARANAC LAKE, NEW YORK.

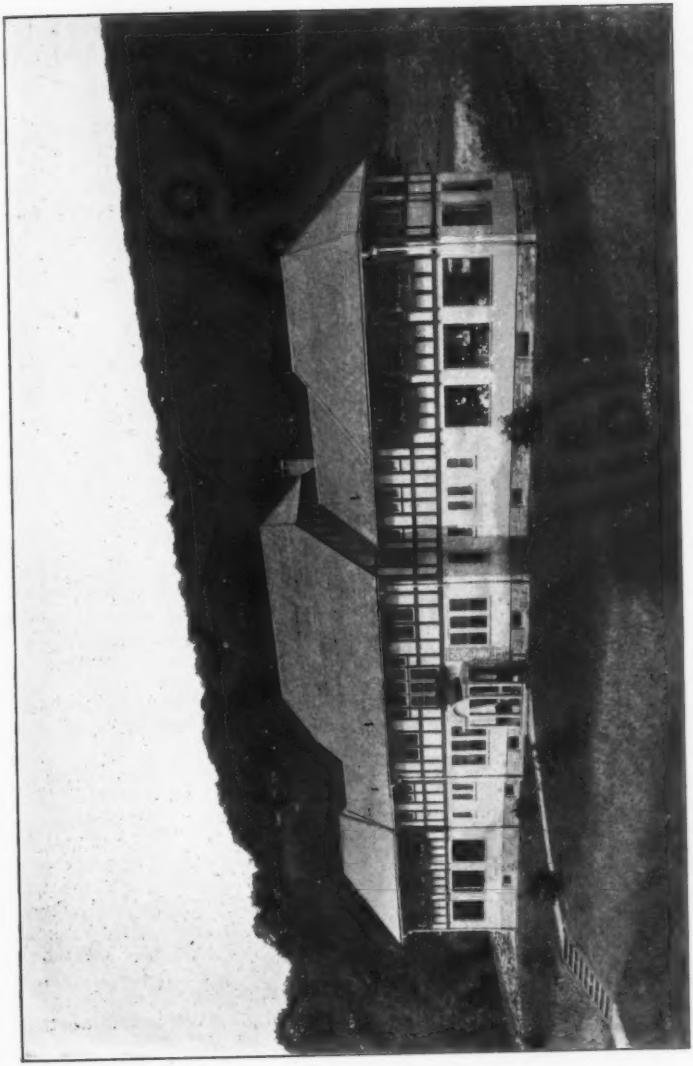
room with a large open fireplace, where the nurses can meet when off duty. By this plan young women, and especially the pupil nurses, who break down in hospital training, are restored to a life of self-supporting usefulness, and the bedridden consumptive can secure a most efficient nurse." This interesting note offers suggestions which merit fullest consideration, and will, if we mistake not, bear fruit in this country.

OLIVIA COTTAGE OF THE LOOMIS SANATORIUM.

Through the courtesy of Dr. Herbert Maxon King, Physician-in-Chief of the Loomis Sanatorium, Liberty, Sullivan County, New York, U.S.A., we are enabled to give a suggestive illustration of the new Olivia Cottage, the gift of Mrs. Russell Sage, which will serve as the Intermediate Division of the Loomis Sanatorium. This unit is intended to provide for the needs of curable cases of tuberculosis met with among self-supporting and self-respecting men and women whose means are restricted. We believe that in this, as well as in other parts of the Empire, generous souls will realize the importance of assisting necessitous members of the so-called middle classes, by providing establishments similar to that shown in the accompanying illustration.

PATHS OF PROGRESS.

Dr. S. Adolphus Knopf (16, West Ninety-fifth Street, near Central Park West, New York City) has kindly sent us copy of the resolutions which he moved at the recent Fourth International Congress of School Hygiene at Buffalo, and which were passed at the final meeting of the Congress. It would seem that exception has been taken to the suggestion in the resolution regarding the conversion of discarded battleships into floating sanatoria, preventoria, and open-air schools, on the ground of expense; but it is urged that this could not be compared to the cost of purchasing new sites and the erection of fresh buildings. Dr. Knopf also points out that by the utilization of such ships there could be no prejudice aroused in neighbouring districts against the establishment of institutions for the tuberculous. The following are the resolutions: "*Whereas* nearly a million tuberculous children or children strongly predisposed to tuberculosis are attending our public schools, and there is hardly accommodation for 1,500 to receive instruction in the open air; and *Whereas* the Congress is convinced that the open-air school is one of the most powerful agents in the prevention and cure of tuberculosis in childhood, and it has been furthermore demonstrated that nearly all climatic conditions, providing the air is dust-free, lend themselves to the prevention of tuberculosis in the predisposed and the cure of the afflicted; and *Whereas* statistics show that there are not nearly enough hospital and sanatorium accommodations for adults and children afflicted with pulmonary tuberculosis or children suffering with tuberculous joint or bone diseases; and *Whereas* it has been demonstrated in New York and other cities that discarded vessels lend themselves admirably to transformation into all-year-round hospitals and sanatoria for consumptive adults, sanatoria for children afflicted with joint and other types of tuberculosis, and into open-air schools for tuberculous, anæmic, and nervous children: *Resolved*, that the Fourth International



OLIVIA COTTAGE, THE INTERMEDIATE DIVISION OF THE LOOMIS SANATORIUM.

Congress on School Hygiene petitions the United States Government to place at the disposal of the various States of the Union as many of the discarded battleships and cruisers as possible, to be anchored according to their size in rivers or at the seashore, and to be utilized by the respective communities for open-air schools, preventoria, sanatorium schools for children, or hospital sanatoria for adults. Be it further *Resolved*, that the Congress expresses its appreciation to the Italian Government of the example it has given by consecrating three of its discarded men-of-war to the combat of tuberculosis. Be it further *Resolved*, that this Congress expresses the sincere wish that other Governments may follow the example of Italy; and be it finally *Resolved*, that copies of these resolutions be presented to the American and other Governments represented at this Congress."

Drs. Amrein and Lichtenhahn contribute an interesting article on artificial pneumothorax to this year's summer issue of the *Quarterly Journal of Medicine*.[1]

Professor Leonard Hill contributes a valuable article on "The Physiology of the Open-Air Treatment" to the official *Journal of the Royal Army Medical Corps* for August.[2] This is his conclusion: "I am convinced that the whole of the effect of open-air treatment is due to the movement, temperature, and moisture of the air, and has nothing to do with its chemical properties. Conformity to a better mode of life will enormously increase the health and happiness of everybody. Modern life is tending to put people into confined places, heated by convectors, with perfectly-made windows, no draughts, and that kind of thing, and it is diminishing the metabolism and vigour, health and happiness, of everybody, quite apart from causing consumption. Man cannot go straight into these artificial conditions when he has been for a million years living an outdoor life, facing every element, wind, cold, and rain. He cannot do that. What we have got to do is to compromise and arrange matters so that we may get open-air exercise and exposure to wind and weather. Do not let us put up these great sky-scrapers, or have these artificial cellars for people to live in, but let us have facilities for open air, and playing fields, and exercises of the body, and then we shall enormously increase the happiness of the people."

The Royal Institute of Public Health, 37, Russell Square, London, W.C., of which the Principal is Professor William R. Smith, M.D., D.Sc., LL.D., D.P.H., F.R.S., and the Hon. Secretary Professor E. W. Hope, M.D., D.Sc., have organized a course of instruction for candidates as tuberculosis officers, general practitioners, and others, in the diagnosis and treatment of tuberculosis. The course opens on October 10, at 5 p.m., with an introductory lecture by Professor G. Sims Woodhead, of Cambridge, and will be continued on succeeding Friday afternoons. The lecturers include Dr. Charles Porter, Dr. A. Conyers Inman, Dr. J. Edward Squire, Dr. T. N. Kelynack, Dr. Cecil Wall, Dr. Clive Riviere, Dr. T. D. Lister, Dr. Alfred Greenwood, and Dr. H. Owen West. Bacteriological demonstrations will be given in the labora-

[1] "On Pneumothorax Treatment of Tuberculosis of the Lungs." By O. Amrein and F. Lichtenhahn. The *Quarterly Journal of Medicine*, July, 1913, vol. vi., No. 24.

[2] *Journal of the Royal Army Medical Corps*. Edited by Colonel W. H. Horrocks, R.A.M.C., assisted by Major C. E. Pollock, R.A.M.C. Vol. xxi., No. 2, August, 1913. London: John Bale, Sons and Danielsson, Ltd. Price 2s. net.

tories of the Institute, and visits arranged to sanatoria, tuberculosis dispensaries, etc. The fee for the course is three guineas. The lectures will be delivered in the lecture-room of the Institute on Fridays at 5 p.m. All interested are invited to attend the introductory lecture. An optional examination will be held at the close of the course, at which certificates will be awarded to successful candidates. Further information may be obtained on application to the Secretary, Mr. Ernest L. Ryley.

The National Association for the Prevention of Consumption and Other Forms of Tuberculosis (Hon. Secretary, Dr. J. J. Perkins, 20, Hanover Square, London, W.) held its Fifth Annual Conference in the Central Hall, Westminster, on August 4 and 5, 1913. The Transactions will be published immediately (price 5s. post free). The volume will contain the Opening Address by the Prime Minister; the general survey on "The Value of Tuberculin in Treatment," by Dr. H. W. G. Mackenzie; and the papers on "The Nature of Tuberculin: Its Preparation, Varieties, Underlying Pathological Principles," by Professor G. Sims Woodhead and Professor De Lydia Rabinowitsch-Kempner; and also the communication on "Tuberculin: The Rationale of its Use, its Possibilities, and Limitations," by Professor Béraneck; "The Therapeutic Value of Tuberculin: Principles of Dosage," by Professor Sahli and Dr. Nathan Raw; and "The Place of Tuberculin in Treatment in Relation to Other Methods," by Professor William Charles White and Dr. W. Halliday Sutherland. On the discussion regarding "Tuberculin: Its Range of Application," will appear the communications of Sir James K. Fowler, Sir StClair Thomson, Sir R. W. Philip, Dr. Noel D. Bardswell, Dr. Clive Riviere, Dr. von Unterberger, Dr. John Rennie, Dr. Rist, Dr. Amrein, and Dr. Egbert Morland. There will also be included an Opening Address on "The Need for the Co-ordination of Anti-Tuberculosis Measures," by Sir R. W. Philip; and papers by Mr. Arthur Neal, Dr. Hermann Biggs, Professor William Charles White, Dr. Rist, Professor Saugmann, Dr. von Unterberger, Sir William J. Thompson, Dr. Coley Bigger, Dr. Hyslop Thomson, and Mr. Courtauld. The Sixth Annual Conference will probably be held in Leeds next summer. It should also be remembered that arrangements are being made for the meeting of the next International Congress on Tuberculosis in London in 1917. This year's gathering of the International Anti-Tuberculosis Association (Hon. Secretary, Professor Dr. G. Pannwitz, Schöneberger Ufer 13, Berlin, W. 35, Germany) will be held at Berlin, October 22 to 25.

In connection with the Royal Sanitary Institute (Secretary, E. White Wallis, 90, Buckingham Palace Road, London, S.W.), a short course of Training Lectures on Tuberculosis, suitable to the requirements of women sanitary inspectors and health visitors, and to those whose duties include the visiting of phthisis cases, will be delivered by Dr. J. E. Squire, C.B., at the Institute, at 6 p.m., on Wednesdays, October 1, 8, 15, 22, 1913.

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Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, London.

TUBERCULOSIS

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TO ADVERTISEMENTS.

The Blood-forming Power of Sanatogen as evidenced by the Percentage Increase in Haemoglobin and the Count of the Red Blood Corpuscles.

Medical literature, during the last few years, has recorded many specific instances of the remarkable blood-forming power of Sanatogen.

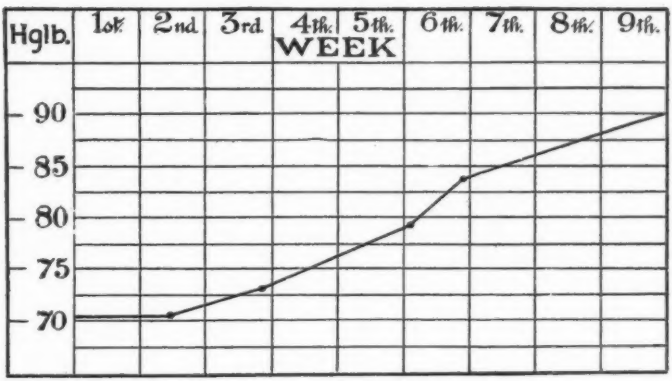
A striking illustration of this fact is furnished in the accompanying diagram, based on observations made by Dr. Starkloff, of the Consumption Sanatorium, Belzig, and published in *Zeitschrift für Tuberkulose*, No. 6, 1911.

The diagram shows the average increase in the hæmoglobin content of the blood during nine weeks, based on the analyses of thirteen patients.

It proves that during the whole period—from the middle of the second

AVERAGE HAEMOGLOBIN INCREASE

from Observations made by Dr. Starkloff at the Consumption Sanatorium, Belzig.



week, when the influence of Sanatogen began to make itself felt, until the end of the ninth week, when the administration of the preparation was discontinued — there was an uninterrupted rise in the hæmoglobin value from about 71 per cent. to 90 per cent., or, roughly, 20 per cent. for the period.

Conclusive as is the evidence furnished by the diagram, its importance is considerably emphasised by similar results recorded in English periodical literature.

Thus, in *The General Practitioner*, the author of an article records the following case: A girl of 17 was suffering from right supra-orbital neuralgia of considerable intensity. The red corpuscles numbered 3,900,000 per c.mm. and the hæmoglobin value was 40 per cent. She took Sanatogen for twenty-one days, when her red corpuscles numbered 4,200,000 per c.mm. and the hæmoglobin had risen to 56 per cent. She made a quick recovery.

To face first page of text.

MEMORANDA.

EDITORIAL.—All Original Articles, Books for Review, Preparations for Notice, etc., should be sent to the Editor, Dr. T. N. KELYNACK, 139, Harley Street, London, W. (Telephone: 3684, Paddington).

Subscriptions.—The Journal is issued in January, April, July and October, and delivered post free to all parts of the world on payment of an annual subscription of **five shillings**, which should be forwarded at the beginning of each year to the Publishers, Messrs. Baillière, Tindall and Cox, 8, Henrietta Street, Covent Garden, London, W.C.

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Advertisements.—Application for spaces for Advertisements of Hospitals and Sanatoria, Books, Preparations and Appliances, etc., should be made direct to the Publishers, who will furnish particulars regarding scale of charges. Every care will be taken to secure a strict supervision over all advertisements, and to provide a thoroughly reliable directory for the use of medical practitioners and others engaged in the practical work of dealing with tuberculous cases.

A DIRECTORY OF SANATORIA.

This Directory of Sanatoria has been compiled to provide medical practitioners and others with a convenient and reliable reference list of private and public institutions for tuberculous patients. The Publishers will be glad to be informed of any corrections or additions.

ENGLAND AND WALES.

Place.	*Name and Address.*	*Terms per Week.*
ALTON (*HANTS*)	Lord Mayor Treloar's Cripple Home and College, Alton, Hants,	
ANGLESEY ...	Penhesgyn-y-Gors, Menai Bridge.	
AYSGARTH (*YORKS*)	Wensleydale Sanatorium, Aysgarth, S.O., Yorks.	2 guineas inclusive.
BARRASFORD ...	The Newcastle-on-Tyne and Northumberland Sanatorium, Barrasford, Northumberland.	
BEDFORD ...	Daneswood Sanatorium, Woburn Sands.	
BELBROUGHTON	Bourne Castle Open-air Sanatorium, Belbroughton, Worcestershire.	From 3 guineas.
BENENDEN ...	Sanatorium of "National Association for the Establishment and Maintenance of Sanatoria for Workers suffering from Tuberculosis," Benenden, Kent.	30s.; Beds maintained by Public Bodies and Trade and Friendly Societies. 30s.
BINGLEY (*YORKS*)	Eldwick Sanatorium, for women and children, Bingley, Yorks.	
BOLTON (*LANCS*)	Wilkinson Consumption Sanatorium.	
BOURNEMOUTH	Royal National Sanatorium for Consumption and Diseases of Chest, Bournemouth.	7s. 6d. and a Governor's nomination.
	The Firs Home, Bournemouth.	
	The Home Sanatorium, West Southbourne, near Bournemouth.	3 to 5 guineas.
	West Howe, Kinson, Bournemouth.	
BRIGHTON ...	Municipal Sanatorium for Brighton Townsfolk, Brighton.	
BROADSTAIRS ...	Home Sanatorium for Children, Eastcliff House, Broadstairs, Thanet.	
BROMSGROVE ...	The Mount Sanatorium, Fairfield.	
BURY ST. EDMUNDS	Bury and West Suffolk Sanatorium.	
CHAGFORD ...	Dartmoor Sanatorium, Chagford, Devon.	3 to 5 guineas.
CHEDDAR ...	Engel Home, for gentlewomen and girls, Cheddar, Somerset.	
CHELTENHAM	Cotswold Sanatorium, near Stroud, Cheltenham.	
	Salterley Grange Sanatorium, near Cheltenham.	
CHESTERFIELD	The Ashover Sanatorium, Chesterfield, Derbyshire.	2½ to 5 guineas
CRANHAM ...	Margaret Street Sanatorium for Children, Cranham, Stroud.	
CROYDON ...	Campbell House, Campbell Road, Croydon.	
DARLINGTON ...	Felix House, Middleton St. George, Darlington, co. Durham.	
DIDWORTHY ...	Devon and Cornwall Sanatorium, Didworthy, South Brent.	Free and by payment.
DORKING ...	Woodhurst Sanatorium (for women and girls only), Tower Hill, Dorking, Surrey.	
EVERSLEY ...	Moorcote Sanatorium, Eversley, Hants.	From 3 guineas.
FARNHAM ...	Crooksbury Sanatorium, Farnham, Surrey.	

ENGLAND AND WALES—*Continued.*

Place.	*Name and Address.*	*Terms per Week.*
FARNHAM ...	Whitmead Sanatorium, Tilford, Farnham, Surrey.	
FRIMLEY ...	Brompton Hospital Sanatorium, Frimley, Surrey.	
GRANGE-OVER-SANDS	Westmorland Sanatorium, Grange-over-Sands.	2 guineas to out-county patients.
HARPENDEN ...	Sanatorium for Children of the National Children's Home and Orphanage	
HASTINGS ...	Fairlight Sanatorium, Hastings.	By subscriber's letter, 11s. 6d.; without, 17s. 6d.
HATFIELD ...	Chantrey House, Hatfield.	
HOLT	Kelling Sanatorium, Holt, Norfolk.	For poor patients
	Children's Sanatorium for the Treatment of Phthisis, Holt, Norfolk.	
HORSFORTH ...	Dean Head Sanatorium, Horsforth, Yorks.	
HULL	Hull and East Riding Convalescent Home, Withernsea, Hull.	
ISLE OF WIGHT	Royal National Hospital for Consumption, Ventnor, I.W.	10s. and a Governor's recommendation
	Hawthorn Dene, Bonchurch, Ventnor, I. W.	From 2 guineas.
	St. Catherine's Home, Ventnor, I.W.	10s. 6d. by selection.
LANCHESTER (*DURHAM*)	Maiden Law Sanatorium.	
KNIGHTWICK ...	Open-Air Treatment Sanatorium, Ankerdine Hills, Knightwick.	
LEEDS	Leeds Sanatorium for Consumptives, Gateforth, near Selby, and Leeds Hospital for Consumptives, Armley, Leeds.	Free for poor of Leeds.
LISS (*HANTS*)...	Oakshott Hanger, Hawkley.	
LITTLE BADDOW	Alfred Boyd Memorial Sanatorium, Chelmsford.	
LIVERPOOL ...	Liverpool Sanatorium for Consumptives, Kingswood, Frodsham, Liverpool.	
HESWALL (*CHESHIRE*)	West Derby, Liverpool and Toxteth Park Joint Sanatorium, Heswall.	
LLANYBYTHER	West Wales Sanatorium, Llanybyther, Carmarthenshire.	
LONDON	City of London Hospital for Diseases of Chest, Victoria Park, London, E.	
	Royal Hospital for Diseases of the Chest, 231, City Road, London, E.C.	
LONDON (HAMPSTEAD)	Mount Vernon Hospital for Consumption and Diseases of the Chest, Hampstead, London.	Free on Governor's recommendation.
LONDON (HIGHGATE)	Sussex House, Bishopswood Road. An after-care boarding-house for city workers.	From 1½ guineas
LONG STRATTON	Fritton Sanatorium, The Beeches, Long Stratton, Norfolk.	
MANCHESTER...	Hospital for Consumption and Diseases of Throat and Chest at Bowdon, Manchester, and Crossley Sanatorium, Delamere, Cheshire.	Free and by payment.
MANSFIELD ...	Ransom Sanatorium, Sherwood Forest, Mansfield, Nottingham.	Free, or 10s. on recommendation of subscribers.

ENGLAND AND WALES—*Continued.*

Place.	*Name and Address.*	*Terms per Week.*
MARGATE ...	Royal Sea-bathing Hospital (for Surgical Tuberculosis), Margate, Kent.	30s.; on recommendation of Governors, 8s. and 12s. according to age.
MENDIP HILLS	Nordrach-upon-Mendip, Blagdon, near Bristol.	3 to 5 guineas.
	Mendip Hills Sanatorium, Wells, Somerset.	From 3 guineas.
MIDHURST ...	King Edward VII. Sanatorium, Midhurst, Sussex.	2 guineas.
MUNDESLEY ...	Mundesley Sanatorium, Mundesley, Norfolk.	5 guineas.
NAYLAND ...	East Anglian Sanatorium, and Maltings Farm Sanatorium for poor men and women patients, Nayland, Suffolk.	
NORTHALLERTON	Ruebury Sanatorium, Osmotherley, Northallerton, Yorks.	From 3 guineas according to requirements (4 beds only).
NORTHAMPTON	Northamptonshire Sanatorium, Creaton.	
NORTHWOOD ...	Mount Vernon Sanatorium, Northwood, Middlesex.	30s.
OCKLEY	Ockley Sanatorium, Ockley, Surrey.	2½ guineas.
PAINSWICK ...	Painswick Sanatorium, Cotswold Hills, Painswick, Gloucestershire.	
PENMAENMAWR	Nordrach-in-Wales, Pendyffryn Hall, Penmaenmawr, North Wales.	
PEPPARD COMMON	Kingwood Sanatorium, for ladies; Maitland Sanatorium, for working-classes, Peppard Common, Oxon.	
RAMSGATE ...	St. Catherine's Hospital for Consumption.	15s.
READING ...	Boxgrove Cottage Sanatorium, Tilehurst.	
RINGWOOD ...	Linford Sanatorium, Ringwood, Hants.	4 to 5 guineas
RUDGWICK ...	Rudgwick Sanatorium, Rudgwick, Sussex.	2½ guineas.
RUTHIN	Vale of Clwyd Sanatorium, Llanbedr Hall, Ruthin, North Wales.	3 to 5 guineas.
SANDON	Merivale Sanatorium, Sandon, near Chelmsford, Essex.	3 to 6 guineas.
SHEFFIELD ...	City Hospitals for Consumptives (males), Commonside; and Crimicar Lane (females), Sheffield.	
SKIPTON	Eastby Sanatorium, for males, Skipton, Yorks.	
SLINGFOLD (*SUSSEX*)	Private Home, Warwick Lodge, Slingford, Sussex.	
STANHOPE ..	Durham County Sanatorium for men, Stanhope, R.S.O., Durham.	Free and by payment.
STANNINGTON	Children's Sanatorium, Stannington, Northumberland.	
ST. LEONARDS	Eversfield Chest Hospital, West Hill, St. Leonards.	10s. with subscriber's letter. (10 beds free Metropolitan Hospital Fund.)
SUDBURY (*SUFFOLK*)	Chilton Hill House, Sudbury, Suffolk.	
THRELKELD ...	Blencathra Sanatorium, Threlkeld, Cumberland.	

ENGLAND AND WALES—*Continued.*

Place.	*Name and Address.*	*Terms per Week.*
TORQUAY ...	Mildmay Consumptive Home (for advanced cases only), Torquay.	10s. 6d., or 7s. with subscriber's letter.
	Western Hospital, Torquay.	7s. 6d. by nomination, 12s. 6d. without.
WAKEFIELD *(YORKS)*	Cardigan Sanatorium, Carr Gate, Wakefield, Yorks.	Maintained by the West Riding County Council for male patients receiving the "Sanatoria Benefits."
WINSLEY ...	Winsley Sanatorium, Near Bath.	
WOKINGHAM ...	The Pinewood Sanatorium, Pinewood, Wokingham.	3 guineas.
YELVERTON ...	Udal Torre Sanatorium, Yelverton, South Devon.	31s. 6d. to 42s.
WOLSINGHAM ...	Durham County Sanatorium, for women and children. Wolsingham, Co. Durham.	Free and by payment.

SCOTLAND.

ABERCHALDER *(INVERNESS)*	Inverness-shire Sanatorium, Aberchalder, N.B.	Free and by payment.
ABERFOYLE *(PERTHSHIRE)*	Children's Home Hospital.	
BANCHORY *(DEESIDE)*	Nordrach-on-Dee, Banchory.	5 guineas.
BRIDGE OF WEIR *(RENFREW)*	Consumption Sanatoria of Scotland, Bridge of Weir, Renfrewshire.	
COLINTON ...	Bonaly Cottage Sanatorium, Colinton, N.B.	
DUNDEE	Sidlaw Sanatorium, near Dundee.	
EDINBURGH ...	Royal Victoria Hospital for Consumption, Edinburgh.	Free; with a limited number of beds at £1 1s.
	Woodburn Sanatorium, Morningside, Edinburgh.	
GALASHIELS ...	Meigle Sanatorium, Galashiels, N.B.	
KINGUSSIE, N.B.	Grampian Sanatorium.	
KINROSS-SHIRE	Coppin's Green Sanatorium.	
KIRKINTILLOCH	Lanfine Home.	
LANARK	Bellefield Sanatorium, Lanark.	
MILNATHORT,	Ochil Hills Sanatorium, Kinross-shire.	
NEW CUMNOCK	Ayrshire Sanatorium, Glenaften, New Cumnock, Ayrshire.	
OBAN	Argyll County Sanatorium, Oban.	
PEEBLES... ...	Manor Valley Sanatorium, Peebles, N.B.	
PERTH	Barnhill Sanatorium, Perth, N.B.	

IRELAND.

DONERAILE ...	Cork County Sanatorium, Heatherside, Doneraile, co. Cork.	
DUBLIN ...	Larch Hill Sanatorium, Dublin.	
FORTBREDA ...	Forster Green Consumption and Chest Hospital, Fortbreda, Belfast.	Six beds free, others by small payment.
WARRENPOINT	Rostrevor Sanatorium, Warrenpoint, co. Down.	3 to 3½ guineas.
WICKLOW ...	Altadore Sanatorium, Kilpedder, Wicklow.	
	The Royal National Hospital for Consumption for Ireland, Wicklow.	Minimum, 7s., on subscriber's recommendation.